Textile World

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SHELL WOLCO OILS

Textile World

JANUARY, 1939

DOUGLAS G. WOOLF, *Editor*

Paging Walt Disney!

ONLY Walt Disney could do justice to the textile year of 1938. A composite of his Mickey Mouse, Dopey, and Ferdinand the Bull would be sane compared with the crazy pattern of the year just closed in this industry.

We read in the papers that there have been some new fibers in this year of 1938. Fiber 66, for example, otherwise called Nylon. It's just as good for milady's hosiery as it is for the family toothbrush. We, speaking personally, have been using one of the Miracle Tufts. Against our gums, it is an irresistible force. If it does as well in women's stockings, one pair will still be good when the Angel Gabriel blows his horn. If that's what they call "Silk's Last Battle-Ground," it isn't a fight at all; it's a slaughter.

But then there are other fibers in the offing—the new acetate, the new viscose, and Vinyon, not to mention cheese wool, fish fiber, gold gowns, and products of pineapple, soy beans, okra, and points West.

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To wander for the moment:

NRA, Ellenbogen Bill, and other attempts at Federal control of industry fade into insignificance compared with the Wage-Hour Act passed in this same year under discussion. But thanks to the temperament of Elmer Andrews, this has been a sugar-coated pill. How long it will take to lick the sugar off depends, we believe, on the restraint Mr. Andrews can impose upon his staff. He himself has been accepted as a swell guy—and he is! Let's hope he—and men like Donald Nelson—continue to run the show.

Which brings us, for no reason at all, to the trade agreement with Great Britain. A bullet-proof case made by the textile industry seems to have been vulnerable on only one count: It couldn't stand up against sealed convictions. And so, in the cause of "peace," the industry passes along some of its business to other nations also interested in the cause of "peace." As a momentary disciple of Father Divine, we say: "Peace, it's wonderful."

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And, in 1938, the Department of Agriculture advanced a two-price subsidy plan: to liquidate surplus farm products; to aid the needy; and to save Secretary Wallace's face. At the moment, the Department is trying to pass the buck to the press, to industry, or to anyone who will accept responsibility for this would-be miracle. It *does* seem as if someone should help Uncle Henry out. He's *so* good looking, and *so* well-intentioned.

•

We're not through yet. During this same year, the hitherto-esteemed Federal Trade Commission has requested suggestions from the textile industry as to how it might draw up rules to aid a consumer in buying textiles. The idea of the game seems to be this: Get all the thoughts that indusry can supply—and then do the opposite. It's a good trick if you can do it—and the F. T. C. thinks it can.

This same year 1938 saw other strange phenomena. It witnessed textile stagnation in its first half, followed by feverish activity in the second half. But to many it was profitless prosperity.

•

But there were compensations. A grand old man—Captain Ellison A. Smyth—celebrated his 91st birthday, proving that the copy-book maxims have not been entirely repudiated. . . . TEXTILE WORLD celebrated one of its two anniversaries: the 50th year of its continuance under that name. (Its 75th year of succession will fall due in 1943). . . . Merchandising impulse was carried forward by prize-winning performances of several textile mills, even if wool promotion *did* fall by the wayside. . . . Textile education has advanced, thanks to the Textile Foundation and Fred Feiker. . . . New progress in economic research is being made, thanks again to the Textile Foundation, and to Fess Blanchard and his committee. . . . A new consciousness about industrial relations is being established, as evidenced by the response to our Annual Issue and to our editorial: "A Word About MEN." . . . An opportunity for real coordination of textile associations looms, in view of the support Dr. Murchison gave to our proposal of five years ago.

This age-old industry is still going places. If it is, thanks are due not to the Government, nor to Governmental departments, but to the staying-power of the manufacturers and their personnel. They have been operating in the face of a chorus of Silly-Symphonies.

And so, we repeat, Walt Disney should have written—or at least illustrated—this editorial.

THE EDITOR SAYS

The Strange Case Of Harry Hopkins

THE Department of Commerce is supposed to be the agency through which business is represented in government. It operated as such during the eight years of Herbert Hoover's secretaryship. It has failed so to operate during the last six years.

The fault lay partly in the eclipse of the Department by the NRA, and partly in the personality of Daniel Roper as secretary. It is true that he has done nothing harmful to business. But it is equally true that he has done nothing particularly helpful to business. He passes from the scene with a goose-egg as his approximate score. Whether that was his fault or not, we do not know; we are merely reporting results.

Harry Hopkins succeeds him. This much should be made clear: There is no criticism of Mr. Hopkins as a man. The only questions have had to do with his appointment as Secretary of Commerce. That official is presumed to be the spokesman for business. Somehow or other, Harry Hopkins doesn't quite seem to fill the bill.

Here is an analogy: the possibility of Tom Girdler as Secretary of Labor. From the standpoint of business, Mr. Girdler is a swell guy. From the standpoint of labor, he would be regarded—and quite rightly—as something less than an ideal spokesman. Harry Hopkins, business feels, is equally out of character as its spokesman.

Therefore he starts with a serious handicap. His first utterances indicate that he realizes that fact, and that his attitude toward industry is to be a conciliatory one. (Strange words to be using about a "spokesman," but nevertheless true.) Business should meet him more than half way.

There is a crying need for vigorous expression of industry's needs in Washington. Mr. Hopkins is the vigorous type. He also stands in well with the Administration. By the united efforts of himself and business, definite good may be squeezed out of this strange appointment.

The Strange Case Of Elmer Andrews

SPEAKING of strange appointments—as we were a moment ago—we still can't figure how Elmer Andrews ever got by. With Hugo Black as Supreme Court Justice, Frank Murphy as Attorney General, and Harry Hopkins as Secretary of Commerce, it seems just too darned sane to appoint as Wage-Hour Administrator a man who really is qualified, by experience and *temperament*, to be Wage-Hour Administrator.

Our only regret is that Mr. Andrews isn't quintuplets . . . But probably he feels like them many times nowadays.

Honorable Mention

WE would be less than human if we did not report in the Public Relations Honor Roll this month the fact that Bliss Fabyan & Co., Inc., reprinted in their paid-advertising space in *Daily News Record* Dec. 27 the leading editorial from the December issue of TEXTILE WORLD, entitled "What, If Any, Is the Gain?"

◆ For frank dealings with employees, we give high rating to "The President's Corner," in *The Botanist*, published by the Botany Worsted Mills. We asked Col. Chas. F. H. Johnson, president, about this Corner and he said: "For ten years it has given me an opportunity of talking to my people every month through its columns in rather straightforward language. I try to write so that they can understand just what I mean. I try to avoid ever saying anything to them that I cannot make good on or that the company cannot come through with. I also try to meet head-on every question that I know is in their minds, and you know and I know that most of us as executives soon learn what the questions are if we really want to know them."

◆ Pictured on this page is the first outdoor billboard poster used by the Cotton Manufacturers Association of Georgia in the campaign previously mentioned in these columns.

The first billboard poster used by the Cotton Manufacturers Association of Georgia in its "Let's Keep the Cotton Mills in Georgia" campaign. The association is also using newspaper advertising space for the same purpose.

ABOUT OURSELVES

***The Cover:** This month we start the use of editorial front-covers on* TEXTILE WORLD. *This plan has been in our minds for a long time. Much as we regretted to take away that space from advertisers' schedules, we feel the increased reader-interest brought about by these editorial covers will well warrant the move, from the standpoint of reader, advertiser and publisher. . . . The photograph on this month's cover was taken in the Shawmut (Ala.) plant of West Point Mfg. Co., controlled by Wellington Sears Co.; the photographer is Robert Yarnall Ritchie. The picture shows the removal of a roll of heavy duck after the last inspection.*

***New Worlds to Conquer:** A pictorial insert starting on page 61 shows the latest in the field of new uses for textiles.*

***By Request:** Two articles in this issue —that on "Boarding Hosiery," on page 50, and that on "Finishing Cynaras," on page 54—are appearing as the result of letters from various readers requesting information on these subjects. We cordially invite readers to write and let us know what particular phases of textile manufacturing or processing they would like to see covered in articles—and we shall try to produce.*

Council Idea Grows

Response reveals realization of need for textile coordination

SENTIMENT in the textile industry, and in the allied fields, indicates a growing support for the idea of closer coordination among the various textile associations, as advocated editorially by TEXTILE WORLD. Specifically, there is endorsement of the proposal for a Textile Council, on which would be representatives of all the major organizations.

Recent conversations with leaders in all sections of the industry indicate to us that the time may be ripe for the initiation of such a move. The step taken toward coordinating the cotton, rayon and silk divisions has spurred interest in this trend.

Below are a few comments which we have selected from a collection of opinions received by us.—*Editor.*

Must Live as One Family

Editor, TEXTILE WORLD:

I am very glad to see you continuing to hammer on the point of a council for the whole industry. I repeat again that the day that cotton, wool, rayon and silk textiles learn to live together in orderly fashion and with hearty cooperation as one family, that very day they will strengthen their individual positions and rectify many of the evils that have beset them this past generation. The basic problem of each branch is the same, and the solution for one is the solution for all.

In my judgment one of the difficulties of pulling them together is that the officials of each institution may think that they would lose something in the eyes of their own particular branch by a council such as has been discussed. They all ought to be made to understand clearly that the fundamental principle is no different from our own political set-up in this country. Each branch can continue to be the governing body of that particular section in the industry. The council would only act where a common front and a common procedure were necessary.

Certainly, in these days of fast Government experimentation and attempted domination of industry, there is a definite common problem for the whole textile industry, whether one branch is silk and another cotton, and so on. There is, in addition, the very important factor of labor relations which has been so forcibly brought to the fore in the last couple of years.

The time has come, it seems to me, to forget all these silly, petty jealousies and the thought of a war between the fibers. Nothing in the world is going to stop or retard scientific development in this age, nor a place in the sun be denied any meritorious thing that can add to the happiness of the world. So the idea that one fiber necessarily competes with the other has no place in a structure where styling and promotion have so much to do with the advancement of the product.

Healthy competition and emulation are very good things but need not be the stumbling block upon which there should fall the thought of organized collaboration between the responsible factors in the textile world.

PAOLINO GERLI,
E. Gerli & Co., Inc.

Must Be Closer Coordination

Editor, TEXTILE WORLD:

I quite agree that the lines of demarcation separating the various groups in the textile industry have become somewhat blurred in recent years. This is particularly true with respect to cotton mills which are using increasing quantities of rayon in their weaving mixtures.

It seems increasingly clear that there must be closer coordination of the trade associations in the textile industry with reference to all matters having to do with Federal regulations.

D. F. EDWARDS,
President, Saco-Lowell Shops

For Its Own Protection

Editor, TEXTILE WORLD:

I agree with Dr. Murchison that a closer group of the textile associations is very desirable so that they can act in a common way through a common head or common council. The trend of the Government is toward grouping all textile industries together no matter how they may vary in their distributions and problems, and while I believe each general division of the industry should have its own organization, yet there should be a council to act in behalf of all, if it can be worked out.

Particularly, I think, is this true in view of what is going on in the State Department through these reciprocal trade pacts, the tendency of which is to pick out such parts of the textile industry as may be desired by our English friends and to make discriminatory reductions in our tariff protection in relation to these separate divisions of the industry.

The effect of taking the fine woolen industries and giving the trade to the English manufacturers is to make more competition, by driving those on fine woolens down into the lower or coarser counts. To eliminate the fine cotton industries is to make more competition for those who are on coarser goods. I cannot see the justice of attempting to disregard or greatly harm one section of the textile industry and not touch the other.

I think our textile industry must be considered as a whole and treated as a whole in its broadest classification. It is either desirable to have it, or if it is better to raise potatoes and wheat, eliminate it as a whole rather than to try out the medieval system of killing a person by lopping off a thumb and finger and so continue on to the final end. The industry correlated as a whole can stand the fight much better—fighting as a whole for its own protection—rather than to be lopped off item by item.

E. KENT SWIFT,
President, Whitin Machine Works

Deserves All Support

Editor, TEXTILE WORLD:

I have read with much interest your editorial in the November issue. I feel that your project of an American Textile Institute deserves every possible support. I do not know whether or not you are familiar with the efforts of the New York Board of Trade along this line.

We, in the New York Board of Trade, tackled this job as far back as March 1, 1928, when a luncheon was held under our auspices at the Bankers Club, to which were invited the heads of some 50 textile trade associations. In this number were included not only industries producing yarns or textiles, but also industries using textiles in finished apparel and other products.

We found that the inertia of trade association politics was such that it was practically impossible to work out any merger involving actual affiliation of different groups. We, therefore, modified our program somewhat and in 1930 set up a Council of Trade Association Presidents, later modified into a Council of Textile Executives.

The council sponsored the Textile Integrity Guild which labored to improve the ethical standards in the textile industry, with particular reference to eliminating the abuses that were bringing about the evil practices with which the industry was then rife.

It is interesting to note as a matter of record, that about 1929, or 1930, when Walker D. Hines, then president of the Cotton-Textile Institute, spoke at a Textile Section luncheon of our group, he maintained at that time that while he would like to go along with such a merger of textile associations, he felt that the problems facing his own group were so momentous that he did not feel justified in extending his efforts beyond that point. I am, therefore, highly gratified that Dr. Murchison has completely reversed this policy, and in this I see a sign of much good to come.

If there is any way in which the New York Board of Trade can help, in your movement, we are quite entirely at your service.

M. L. GITELSON,
Chairman, Textile Section, New York Board of Trade, Inc.

NEWS OF THE MONTH

Japan Pact Renewed

The joint committee representing Japan and the United States has reached an agreement renewing the cotton goods quota agreement for two years, that is through 1939 and 1940. The new quota is for a maximum of 200,000,000 sq. yd., with a carryover from the first year to the second year of a maximum of 20,000,000 sq. yd. The total compares with 255,000,000 sq. yd. set for 1937 and 1938.

In view of present conditions, and the drastic drop in imports of cotton goods from Japan, it is recognized that this agreement is significant only so far as the future is concerned.

Dr. Claudius T. Murchison, president of the Cotton-Textile Institute, and T. Enouye, commercial attache of the Japanese Embassy, signed the new agreement.

Annual Hosiery Conference

Annual hosiery conference under the joint auspices of the several associations in the industry, will be held Jan. 18 and 19 at Waldorf-Astoria Hotel, New York. Stabilization and a united front are expected benefits. There will be discussion of wage-hour law, monopoly investigation, FTC labeling rules and the merchandising Dept. of the National Association of Hosiery Manufacturers will report.

Cotton Council Meets

Nineteen cotton-producing States interested in increasing the consumption of American cotton and cottonseed products will send official delegates to the general meeting of the National Cotton Council of America, in Dallas, Tex., Jan. 24. The call for the meeting was issued by Oscar Johnston, of Stoneville, Miss., chairman of the council.

The executive committees and permanent officers will be selected at the Dallas meeting to administer the council's program. The States have selected from each of the five primary cotton interests the permanent delegates to the council. Three members from each interest will form each State council with the exception of representatives from the producers' interest, which will be selected on a basis of allowing one producer member for each 500,000 bales of the preceding five-year average annual production, or major fraction thereof. No State, however, will have less than three producer delegates.

Each State is raising its pro-rata part of a quarter-million-dollar fund be used by the council for executing its program.

European Textile Men to Visit U. S.

A group of approximately 150 textile executives from 10 European countries will visit the United States in June under the leadership of Marcel Melliand, publisher of the *Melliand Textile Reports*, Heidelburg, Germany. The group will inspect textile plants in New England, the Middle Atlantic States, and the South, and will also visit the New York World's Fair. Included in the visitors will be 70 manufacturers from Germany. Mr. Melliand was here on a brief visit recently.

THE ABOVE reproduces portion of an advertisement which appeared in the *New York Times* for Dec. 21, which may represent tops in overcoat prices for all time. The clothier who offers this garment states as follows in the advertisement: "The entire fleece of more than 60 Angean Vicunas is required to produce sufficient cloth for just one of these supurb overcoats. Because of the scarceness of this precious animal, its valuable fleece is sold exclusively under license by the Peruvian Government. Only enough of this exquisite cloth is available to make 50 of these unique overcoats, thus conferring upon the few men who can afford them a matchless distinction in dress. The Stroock Mills, makers of outstanding fabrics for three-quarters of a century, have loomed this superbly soft and radiant fleece into a cloth which is necessarily expensive. Yet to the few men who can afford its luxury, the price is incidental to owning an overcoat made of the 'world's finest fabric'. You can now have a coat hand-tailored to your measure of this fabulous Stroock pure Vicuna cloth for $900."

Naushon Mills Open

A new company for the manufacture of plain and fancy cotton goods under the name of Naushon Mills, Inc., was scheduled to start production in the plant of the former Dartmouth Mills at New Bedford, Mass., early this month. Ralph H. Perkins is president; D. J. McLean, treasurer; and H. H. Pepler, general manager. About 1,200 will be employed.

Employees are to subscribe $150,000 to be deducted from their weekly wages of $18 or more, at the rate of 5%, and preferred stock of 30,000 shares of $5 par entitled to 5% cumulative dividends, is to be issued to the workers as fast as paid for at par.

Farr Alpaca To Liquidate

Stockholders of the Farr Alpaca Co., Holyoke, Mass., voted on Dec. 8 to liquidate the concern after nearly 60 years of operation. The plant had been examined by experienced textile men, who were unanimously of the opinion that the business as a whole, and as previously conducted, should not be continued. There was a lack of agreement as to what lines of production might profitably be maintained, and estimates of possible revenue generally did not set the figure high enough (according to a special committee reporting to the stockholders) to make the outlook very promising for shareholders whose interests would be subjected to a mortgage of $2,500,000 or less.

New Statistical Policy

As a result of recommendations by a committee appointed to consider possible improvements in the statistical services of the Department of Commerce, the Bureau of the Census will now be responsible for the collection, tabulation and release of the basic tables on current statistics, while the Bureau of Foreign and Domestic

Commerce will analyze, interpret and publish the final reports. Previously, each of the bureaus performed both functions in certain fields.

The new arrangement applies only to business and industrial statistics gathered at intervals under one year and does not affect the periodic industrial and business censuses. Special studies conducted by either bureau do not come within the scope of the policy change.

Retailers Consider "Public Relations"

National Retail Dry Goods Association will hold its annual meeting in New York at Hotel Pennsylvania, Jan. 16 to 20. The general program centers on measurement of store functions and activities with the gage of good public relations, and exploration of the problems coincident with the new era of increasing sales. There will be numerous outside speakers. More than 35 sessions will be held.

World's Fair Notes

In the Italian Pavilion at the New York World's Fair 1939 there will be a complete showing of fabrics made from all the fibers. It is understood that this will mark the start of a drive toward American markets on the part of Italian fiber and fabric manufacturers.

More than 1,000 articles of World's Fair licensed merchandise were exhibited in the Press and Promotion Building at the Fair Grounds recently. The articles included pajamas, belts, suspenders, sweatshirts, pullovers, fabrics, etc.

Power Show Held

The thirteenth National Exposition of Power and Mechanical Engineering was held at Grand Central Palace, New York, Dec. 5 to 10.

Outstanding among exhibits was a full-size water-cooled stoker incorporating radically new design features. A boiler water control that eliminates floats and valves operating in the steam is intended primarily for boilers of 150 h.p. and smaller.

Instruments and controls featuring new developments and unique applications attracted wide attention. A wide variety of valves was introduced, including reducing, companion-angle, gate, globe, water-column, and ring-plate valves; pressure regulators, liquid-level controls, duplex blowoff units, pipe-line separators, boiler-drum separators, etc. A cross-sectionalized model demonstrated a valve that separates water and solids out of steam and compressed air.

Materials handling equipment included lift trucks, portable elevators, hand and electrically operated; motor truck cranes and winches, skid and drum racks, barrel trucks, safety-pull ratchet-lever hoists, low-head hoists, eccentric-gear chain-hoists, etc.

"I was never late—th' whole thirteen years that I been here!"

Loans for Hosiery Mills Held Up

Refusal to allow loans made by the Farm Security Administration for the construction of hosiery plants at certain projects in the South, was made late in December by Acting Comptroller General Elliott in Washington. Two of the five hosiery mills are actually under construction. The FSA officials believe Mr. Elliott's decision will be reversed.

Wool Lingerie

A wool lingerie show was staged recently in Paris in collaboration with the Wool Development Dept. of the International Wool Secretariat. New ideas in negligees, nightgowns, underwear and boudoir accessories were shown. Red is reported to be the favorite color. The movement seems to mark a return to the old red flannel days.

Rugs Once a Year

Plans for holding only one trade opening a year (instead of the present two) have been approved by the carpet industry, it is reported, and after the current spring showing is past will be put into effect. A July date is favored. Savings in costs and a gain in market stability are anticipated.

Argentine Cotton

Argentina's cotton production for 1937-38 totaled 51,455 tons (about 206,000 American bales), compared with 31,170 tons the previous season. The new 1938-39 crop covers about the same acreage as that for 1937-38 which was 1,060,000. It is still too early to forecast the out turn.

40-Section Footer at Arcadia Hosiery

A 40-section full-fashioned hosiery footing machine has been placed in operation by Arcadia Hosiery Co., Lansdale, Pa. The machine, understood to be the first in the industry to produce 40 stockings in a simultaneous operation, is the result of coupling together two 20-section footers. Coupling together of two footers eliminates one ringless attachment, one pointex,

Textile Calendar

- *National Retail Dry Goods Association, annual meeting, Hotel Pennsylvania, New York, Jan. 16 to 20, 1939.*
- *Industry-wide Hosiery Conference, New York, Jan. 18 and 19, 1939.*
- *American Association of Textile Chemists & Colorists, Philadelphia section, Penn Athletic Club, Philadelphia, Jan. 20, 1939.*
- *National Cotton Council of America, Dallas, Tex., Jan. 24, 1939.*
- *Boston Wool Trade Association, annual dinner, Hotel Statler, Boston, Mass., Feb. 2, 1939.*
- *Philadelphia Textile School Alumni Association, annual banquet, Philadelphia, March 3, 1939.*
- *Southern Textile Exposition, thirteenth show, Textile Hall, Greenville, S. C., April 3 to 8, 1939.*
- *Southern Textile Assn., meeting during show week at Greenville, S. C.*
- *Knitting Arts Exhibition, 35th annual show, Commercial Museum, Philadelphia, April 17, to 21, 1939.*

and other parts. The length of the consolidated machine is approximately 57 ft.—3 ft. shorter than two 20-section machines. The two motors are synchronized, and operate with a single control. The machine results in a considerable saving in labor costs. Production on the 40-section footer is about 70 doz. per 8-hr. shift. The idea of coupling together the footers was worked out by Frank Weisbecker, of Hosiery Patents, Inc., Lansdale, Pa. Mr. Weisbecker is also the inventor of flexible yarn carriers for use on full-fashioned hosiery machines. Although there is no patent on the joining of the machines, patents have been applied for on some automatic features.

Cottons Stronger As Year Ends

Print cloths showed considerable strength a few days before the year's end, following several weeks of dreariness prior to the Christmas holidays. Sellers advanced prices 1/8c. and were less anxious to take forward business. Southern mill men report shipments moving in greater volume, which means that the inventory picture is improving. Business continued good in wide sheetings. Talk of curtailment among print cloth manufacturers, which was a growing rumor before Christmas, has already begun to die down.

Rayon Steady

Rayon continued to hold the interest of weavers and knitters through December. Buying is largely for the nearer months. Spun rayon prospects improve. The movement to set up in New York a hedging market for spun rayon has not progressed due, it is said, to the lack of cooperation from Japan.

Rayon Fabrics Optimistic

Moderate activity is reported in rayon fabrics, with prices firm to advancing. Buyers are lining up their favorite fabrics for spring distribution. In standard fabrics loom operations were about 75% of capacity. Pigment rayon taffeta bulks large in current production, with twills and box loom fabrics also sought. Silks are steady with moderate interest.

Last month printers represented in the recently organized Allied Textile Printers Alliance, Inc., put into effect price increases ranging from ½ to 5c. per yard, depending on percentage color coverage of the fabric. Also there was a 10% price advance on the part of leading screen printers on Dec. 26.

The new Bermuda length shorts and skirt of Teca Point, the new Eastman-designed fabric of crimped spun acetate rayon and tussah silk. From Meadowbrook Sportswear.

Wool Goods Get Scarcer

Business for the next two months looks better than average in wool goods circles. Mills are behind on deliveries, and are probably increasing operations now that the holiday and stock-taking period is past. They are sold up solid through February in many quarters. Clothiers are feeling the effects of their late buying of spring goods.

Women's wear trade moves moderately with interest in tweeds, bouclés and pile fabrics.

The fall, 1939, men's wear season will open next month according to current expectations, but, as usual, reports are going around of preopening orders. Wool blankets will be opened this month and prices will probably show a 7½% rise over a year ago.

ONLY an Einstein could figure out the miles of cotton thread used in the Second Annual National Crochet Exhibition, held recently in New York. The first exhibit brought in 350 entries; this one totalled 1,867—with everything from a wedding dress and American flag to crocheted bedspreads. And it's not confined to the ladies. A gentleman from Illinois won honorable mention with a bedspread he had created!

Possible Easing in Hosiery Avoided

Pricing of spring lines of full-fashioned hosiery was delayed to feel out what effect was to be experienced as result of the present wage revisions in Pennsylvania where the union is granting concessions in exchange for rehabilitation of equipment. This situation should clear up early in January and buyers do not appear particularly interested. Branded lines opened at unchanged prices, and some unbranded mills rescinded earlier cuts.

Moderate Interest in Underwear

Underwear mills find wholesalers and chains moderately interested in spring goods. Prices are reported firm. Sellers believe the coming fall season will start at price levels little changed from current range. Interest in medium weight garments at retail is regarded as possibly significant of expansion along these lines.

Outerwear Uncertain

Outerwear mills are watching the threat of British imports more closely than most branches of the industry. Buyers in many instances will go abroad early in the year and the effects should be calculable by February or March. Absence of heavy inventories in the market aids stability.

New Printing Group

Several printers of rayon dress fabrics have formed a new trade association, known as the Allied Textile Printers, Inc. Offices are at 140 Market St., Paterson, N. J. Firms represented include Printex Corp., Kapo Dyeing & Printing Works, Lincoln Print Works, Westover Print Works, and International Dye & Print Works.

Wool Tops

Wool tops were up and down in December with some speculators counting on the U. K. trade agreement to reduce wool values. New York spots opened December at 83c., went to 81c. on Dec. 9, 82c. on Dec. 16, 83c. Dec. 23, and 85c. Dec. 30.

Raw Silk Firm

Raw silk firmed through December, gaining 5c. per pound. Interest remained fair considering the holiday period and inventory time.

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This and That

◆ Publication of seventeen progress reports of the rayon warp sizing investigation carried out by the United States Institute for Textile Research started in the December issue of *Textile Research*. The first report deals with the viscosity of starch pastes.

◆ A new permanent shrunk finish for marquisettes has been announced by Mount Hope Finishing Co., North Dighton, Mass. The finish is said to leave the goods with an average residual shrinkage of less than 2% in the warp, to withstand laundering temperatures up to 120°F., and to enhance the appearance of the fabric.

◆ The Leipzig Trade Fair will hold its spring sessions from March 5 to 13 inclusive. This will be the 1981st session of this fair which has been in existence for more than 700 years.

◆ J. P. Stevens & Co. opened their new offices in the Empire State Building, New York, Dec. 19. This office includes the following fabric departments: Stevens, Hockanum, Hamilton, U. S. Bunting, Sawyer-Regan. The cotton goods division remains at 44 Leonard St. and the rayon division at 1410 Broadway.

◆ Marshall Field & Co. has appointed William Whitman Co., New York, selling agents for their woolen and spun rayon piece goods for men's and women's wear.

◆ Wellington Sears Co., New York, is using Sylph, the staple fiber product of Sylvania Industrial Corp., in a new line of drapery, upholstery and sportwear fabrics.

◆ Improvement of conditions is the aim of the Textile Distributors' Institute, Inc., recently formed in New York by rayon converters and converter-weavers. Purposes of the body include amelioration of trade abuses, aid in trade research, and promotion of more friendly relations. The present unsatisfactory cooperative advertising situation is a major concern. Herman Chopak is president and treasurer and Sylvan Gotshal is acting-secretary.

1939 Prospects

Practically all prophets seem to be on the optimistic side

THE 1939 debut was a better occasion for prophets than 1938 was. A year ago just about every index was on the skids, and it was impossible to guess where it was all going to end. This year, most indices are headed the other way, and a hopeful prophecy seems to be called for in practically every line of activity.

Fortunately, an upswing in the activity curve is not the only basis for optimism right now. There are undersurface trends whose significance for the future cannot be ignored. Of these, many fall into the class of technological developments which promise to make far-reaching changes in various fields.

We dipped into the annual Christmas pack of year-end statements, and pulled out the following few abstracts as representative of this year's crop.

Stripped for Action

"The industry faces 1939 stripped for action," state Scheuer & Co., textile consultants and brokers, New York, in their year-end textile review. "In many ways it is in better shape than last year. This fact might well act as the springboard for betterment. Highly competitive markets, increased consumption, limited price movements appear to be the outlook. Within these confines each will be called upon to justify his place. It is a challenging prospect, but certainly not discouraging."

"Challenging," in fact, is the term which describes the Scheuer review itself, as evidenced by the following sample:

"The textile industry has maintained a relatively high volume of consumption and yet, as mentioned, it has been unable to market the full production of its most effective machinery. Some day we shall realize that textile consumption can be increased measurably, but in order to accomplish this, every unproductive item of cost from producer to consumer will have to be eliminated. Competition is accomplishing some of this, but in a wasteful and inaccurate sort of way. We shall yet come to the business of re-examining every step in the textile chain of production and distribution in order that we may learn how to give the public better values, and in expanded volume, on a profitable basis. Our economic destiny is to make possible ever-larger supplies of textiles. If we are to hold our place and move forward in the arena of inter-industry competition, it is imperative that such a stock-taking examination be instituted. There is no other choice!"

Bitter but Helpful Medicine

1938 was a year of "unpleasant but necessary curtailment" in the knitted underwear field, with the result that production was the smallest since 1934, but mill inventories were reduced 16% from a year ago, points out the Underwear Institute. Having gone through this essential liquidation, the institute concludes, "the industry very definitely faces a better-than-normal year in 1939 which, incidentally, corresponds with the upturn of the textile cycle." In fact this prediction is made much less vague than the average forecast. "From present prospects," is the final indication, "it seems not at all unlikely that the 1939 production will run from 10% to 15% above that for the year just closing."

One Sort of a Record!

Most years bring new records of one sort or another in the cotton trade, and the past year has been no exception, points out Frank J. Knell, president of the New York Cotton Exchange, in his year-end statement. "In this instance the outstanding new record is in Government holdings of cotton," he states. "The year is drawing to a close with the Government of this country financing an amount of the domestic staple practically equal to one year's consumption at the current rate. It is a situation that would have been almost beyond imagination even a few years ago."

Consequently, says Mr. Knell, the price outlook is obscured by the Government holdings, "for they naturally create uncertainties as to what would be the price if the loan cotton were released." "It seems evident that Congress will re-survey the cotton problems of this country in the coming session, and it is generally expected that it will make some change in the Government cotton programs," he concludes.

Goose to Hang High Again

"It looks to me as though the goose is going to hang high again," is the colorful expression used by Wm. D. Anderson, president of Bibb Mfg. Co., in a letter to customers of the company.

Turning back to 1938 he states: "For most of us engaged in cotton textiles, the year has been a disastrous one from the standpoint of both volume and profit, and mill statements with closing periods during the last six months of the calendar year show operating losses that are pitiable for an industry so fundamental to the economic life of the nation as is ours.

"There are definite signs that we have about reached the end of this long lane, and as we turn into the new year evidences are multiplying that indicate important changes for the better in all lines of business."

Six Months Limit of Prophecy

The thought previously expressed in these columns—namely, that the outlook is good for the first half of the year but that it is difficult to make any prophecy for beyond that time—is shared by Lincoln Cromwell, chairman of the board of William Iselin & Co., Inc. "The general rise in industrial activity," states Mr. Cromwell, "encourages the belief that consumer demand will give the textile people a reasonably good market for the next six months. That is as far ahead as anyone should venture to predict in these unstable times."

Satisfy—Not Satiate—Demand

Admitting that the 1938 textile year has been characterized by many incidents of unsound merchandising, George A. Sloan, former president of the Cotton-Textile Institute, nevertheless sees hopeful signs on the 1939 horizon. He states: "Recent discussions with leaders in the various branches of textile production and distribution reflect a determination to get down to the bed-rock of their difficulties. The closing months of the old year have witnessed an increasing tendency of mill executives and selling agents to counsel with one another and to examine the policies of other major industries. The possibilities of a less uncertain future will improve with this disposition to face the facts and to combat those destructive influences which clearly stand in the way of successful and honest merchandising.

"With a continuing actual consumer demand second to no other commodity, with perhaps the one exception of foodstuffs, the textile industries must satisfy that demand—not satiate it; they must reemphasize the quality of the merchandise which they offer for sale; they must devote more effort and money and sales skill to the cultivation of markets for their goods; they must constantly remind themselves that some plus margin instead of a minus margin between operating costs and selling prices is essential to the healthy economic functioning of the individual plants as well as their wage earners.

"The emphasis shifts to merchandising in 1939."

Hosiery Fared Well

"Comparatively speaking, the hosiery industry, during 1938, was among those industries that fared the best in the volume of business enjoyed," states the National Association of Hosiery Manufacturers in a greeting message to its members. "If prices have not been all that they should have been this has been due in part to the condition of the consumer's purse, and in part to the strenuous competition which necessarily exists within the industry.

"We trust that the path which will be followed during 1939 will lead to further cohesion within the industry, and to improvements in production and merchandising methods. We particularly hope that the industry will be able to adjust itself to the requirements of more recent legislation and that it will be relieved, for a time at least, from additional regulatory requirements. Even as a pot cannot boil if it is constantly stirred, so too industry cannot recover full activity and spread employment without a halt to the flood of new laws and new rules."

"Silver Lining"

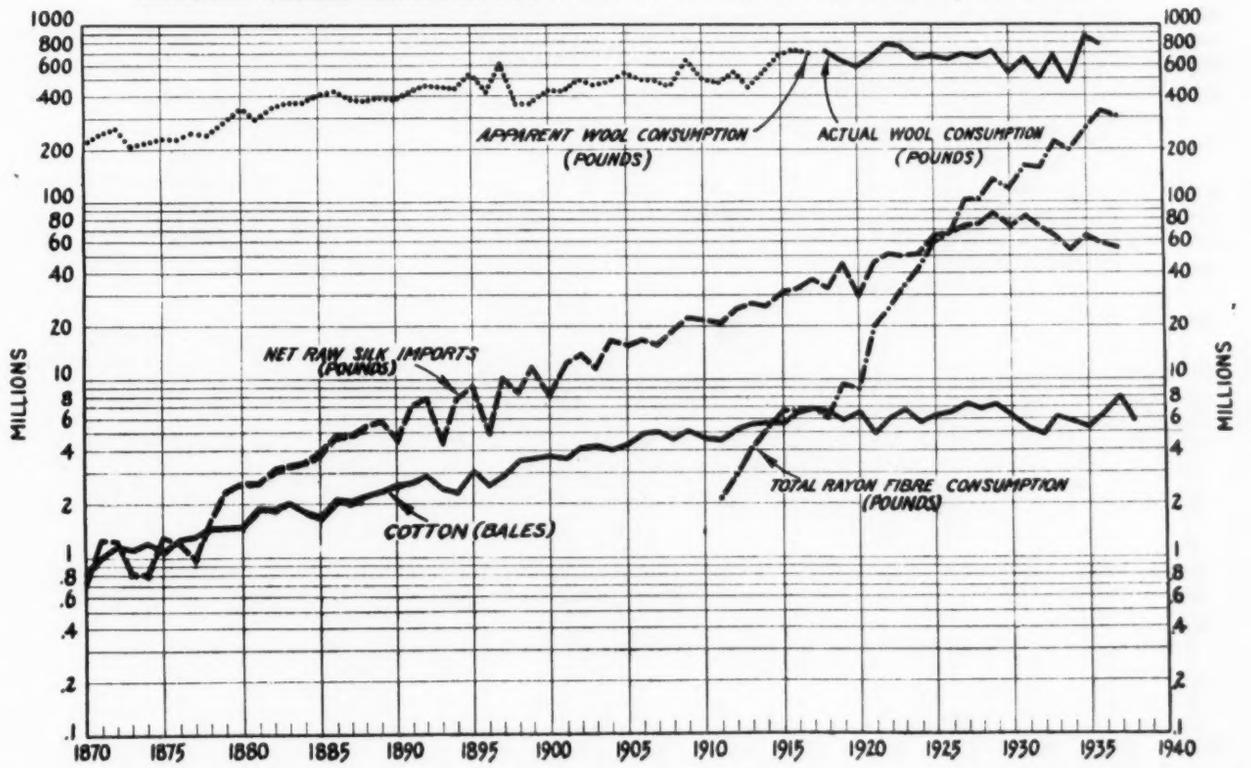
Although final company reports for 1938 will make poor reading despite the upturn in the last part of the year, more notable than any profits made last year were the foundations laid for future profits in the new technological developments that the year brought to light. This is the main conclusion emphasized in the survey of industry published in *Fortune*.

"There were gadgets and novel wrinkles of all varieties in many fields of endeavor," it is pointed out. "The offerings publicized ranged from an infra-red dog delouser to easy-peeling potatoes with shallow eyes and laundry-saving shirts with two collars attached. But there were plenty of more substantial developments and by far the most titillating in the whole parade of these industrial debutantes was a product presented by du Pont under the generic name of 'nylon.'" The survey then goes on to tell of the uses of this new fiber for full-fashioned hosiery, for tooth brush bristles, etc. It also refers to the new type of fiber to be produced by Celanese, as well as Vinyon, on Union Carbide & Carbon Co.

WHAT? NO PROFITS?

THE MOST serious problem facing the cotton-textile industry is the lack of profit possibilities. Despite the improvement in volume of business which started in July, manufacturing margins have declined steadily since then, and were at a new low in December. (See Page 86.) This is one of the mysteries of life. Those who doubt the need for coordinated action in the direction of production limitation and sane merchandising policies are invited to study this degeneration in the face of increasing activity.—Editor.

TEXTILE FIBER CONSUMPTION BY U. S. MANUFACTURERS, 1870–1937



The consumption of wool exhibited a gradual upward trend until 1918; since then its trend has been fairly level. From 1870 to 1920 competition was keen between silk and cotton. By 1920, cotton consumption was only eight times that of 1870 whereas silk consumption was 42 times that of 1870. Since 1920, the trend of cotton consumption has almost leveled and keenest competition has been between silk and rayon. Silk consumption increased until 1929 but has shown a downward trend since that time. Rayon consumption has been greater than silk since 1926 and has shown a continuous and rapid increase. Data for this chart were supplied by the following Bureaus: Agricultural Economics; Census; and Foreign and Domestic Commerce. This logarithmic chart was drafted for Dr. Isador Lubin of Dept. of Labor.

Wage-Hour Group Progresses

Textile wage recommendation expected about March 1—Best guess is 30c

By BLAINE STUBBLEFIELD
Washington Office, TEXTILE WORLD

Exclusive for TEXTILE WORLD *by Harris & Ewing*

The Wage-Hour Textile Board in session—(Left to right, around the table, with notation of the group each represents) H. A. Schrader, labor; Grace Abbott, public; Sidney Hillman, labor; Paul Christopher, labor; R. R. Lawrence, labor; Stenographer; G. Edward Buxton, employer; Donald Nelson, chairman, public; Emil Rieve, labor; Charles A. Cannon, employer; John R. Cheatham, employer; Robert Chapman, employer; John Nickerson, employer; E. L. Foshee, public; Elizabeth Nord, labor. Absent members are: Allen Barrows and R. R. West, employer; Francis P. Fenton, labor; P. O. Davis, Fred Lazarus, Jr., Geo F. Milton and Dr. Geo. W. Taylor, public.

UNOFFICIAL guesses now indicate that Wage-Hour Administrator Andrews will receive the Textile Committee's minimum wage recommendation not later than the first of March. Mr. Andrews is expected to call for hearing on the report and to issue his order soon thereafter.

Likewise unofficial are guesses in Washington and elsewhere that the minimum which Andrews finally orders will be 30c. Almost certainly it will not be less, and possibly it might be more. It is said that some witnesses argued impressively that 40c. would not seriously hurt anybody. But a 40c. recommendation is highly improbable.

All indications are that the committee made satisfactory progress toward its objective. Donald Nelson, as chairman, has registered high with witnesses and committeemen. The latter gave him a unanimous vote of confidence and thanks for his work. Wage-hour officials say they believe most labor and employer interests are equally well pleased.

The main results of the committee's work thus far officially announced are (1) a recommendation to Mr. Andrews that an industrial committee for wool be appointed; (2) a recommendation that manufacturing and processing of knitted fabrics be omitted from the industry as defined, and that yarn and thread, batting and waste, etc., pile fabrics, and some further processing of fabrics, be included. The latter recommendation has been ordered, and the wool committee appointed as follows:

Public Members—Donald Nelson, chairman; Geo. Taylor, vice-chairman; E. N. Allen, Sage Allen Department store, Hartford, Conn.; Z. Clark Dickinson, professor, University of Michigan; Charles H. Eames, dean of Lowell Textile Institute.

Labor Members—Sidney Hillman; Emil Rieve; Horace Riviere, TWOC, Boston; Louis Guilmet, TWOC, Lawrence; Francis Fenton, AFL, Boston.

Employer Members — Thurmond Chatham, Chatham Mfg. Co., Winston-Salem, N. C.; Willard H. Cummings, Daniel E. Cummings Co., Newport, Me.; John H. Halford, James Lees & Sons Co., Bridgeport, Pa.; Moses Pendleton, American Woolen Co., New York; Harold Walter, Uxbridge (Mass.) Worsted Co.

Two resignations from the No. 1 Textile Committee and appointments to fill the vacancies are reported as follows: Louis Kirstein, Boston, resigned to be chairman of the Apparel Committee (No. 2) and will be replaced by Fred Lazarus, Jr., of F. & R. Lazarus, Columbus, Ohio; Seabury Stanton, Hathaway Mfg. Co., New Bedford, Mass., resigned because of ill health and will be replaced by Allen Barrows, Gosnold Mills, New Bedford. It is pointed out that Mr. Barrows has the same kind of textile background as Mr. Stanton.

To be announced before or near press time, is appointment of the committee's most important subcommittee. For lack of another name it may be called "Committee D". It consists of nine men, all members of the main committee: three each for

labor, employers and the public, who elect their chairman. Three major jobs are assigned: (1) Decide whether there should be wage differentials within the industry; (2) decide whether there should be classification of workers; (3) suggest wage orders which the main committee should submit to Mr. Andrews. It is authorized to hold further hearings, summarize and obtain further evidence.

The 15-man wool committee, five each for public, labor, and employers, was recommended by the main committee's sub-group on wool overlap. More distinctly even than suspected by observers, the Nelson group found wool inseparable from other textiles. It was for that reason that Nelson was chosen to be chairman. Both Nelson and George Taylor, vice-chairman, are representatives of the "public".

The Case for Learners' Exemptions

Competent observers disagree as to probable final orders on applications of textile and knit goods employers for learners' exemptions. Some say the division will deny them all, because learners have been exploited by some employers. Others say Mr. Andrews will grant many of the requests because Congress undoubtedly intended, when it wrote Section 14, that exemptions would be justified, and he will want to make the Wage-Hour Division appear generous at the outset.

But if this writer correctly interprets implications by Division executives, and the opinions of Washington labor men, there will be neither blanket authorization nor total denial of exemptions. Those applicants who can amply demonstrate justification under the law will get them. It seems probable however that very few will be granted until after the Nelson committee's new minimum textile industry wage is ordered into effect early in the spring. Basing extensive learner exemptions on a general minimum that seems almost certain to be raised would not be logical. It was for that reason, observers believe, that Dr. Murchison's group withdrew its application for exemption.

Two factors may work against the authorization of any extensive employment of learners at reduced wages. First, in the opinion of most who listened in at the hearings for both textiles and knit work, the labor witnesses definitely outpointed employers in testimony. If this was not the fact it certainly was the effect, induced partly by sympathetic Administration atmosphere. Second, friends and critics of labor alike agree that some responsible officials of the division lean a bit left of center on the question of learners, apprentices, and deficient persons. This of course is to be expected, as party government goes.

At left: Merle D. Vincent, Chief of the Hearings and Exemptions Section, who was Divisional Administrator of NRA for the textile industry. Some employers think he's over-sympathetic with labor. All witnesses enjoy his close attention to everything they say. He's soft-spoken, reasonable, and has few angry exchanges in his hearing room.

At right: Burton E. Oppenheim, who, as Chief of the Industry Committee Section, is responsible for organization and servicing of industry committees. He was a business man, and was NRA Deputy Administrator in charge of some 80 apparel codes. He's one of those hard-working chaps who can always find time to help you out.

In general, the Hearings and Exemptions Section is said to feel that new plants in non-industrial communities, almost entirely unstocked with workers of any experience, are entitled to exemptions to get going. But their very next thought is that those plants were located expressly to take the benefit of willing, low-pay workers. Employers answer that those workers are better off after the plant came than before. But the section is wary about granting exemptions and thereby seeming to O. K. migration toward low-wage regions with detriment to those who stay put, surrounded by higher costs. And it doesn't like the alleged fact presented by the unions that skilled workers go jobless while youngsters free of responsibility get the work. All that will go down on the debit side of the section's book. On the credit side, however, it will put down what it knows well: that exploitation of learners is resorted to only by a thin scattering of chiselers.

Seeking a Tough Violator

Attention in the Wage-Hour Administration, generally, is now fixed on two main objectives: enforcement of the law and renewal of industrial committee activity.

Enforcement is proving a perplexing problem for the division, but fortunately, violation appears to be limited to a very few substantial firms and possibly many small and unimportant employers whose status in "commerce" is doubtful. In other words the proportion of workers in interstate commerce who are not getting the benefits of the law, as a result of violations, is small. In fact the number is probably more than offset by workers getting benefits from employers who could get excused if they wanted to risk a court decision.

Nevertheless, the division is determined to push enforcement. It is confronted by the unique difficulty of finding a violator who will rear back and fight. Like shop-lifters, when apprehended, they say they were just going to pay up, or they forgot. The wayward employer pays his back wages, promises to be good and the case is so badly deflated that it's no good for making an impressive example. As this is written the administrator thinks he has one or possibly two violators who will put their backs up when tacked and offer the kind of resistance it takes to make a battle. The more spirited of the two is supposed to be in North Carolina, the other in New York.

It looks as if the division will have to be the aggressor if any cases are to come to Supreme Court for decision on constitutionality. Officials have heard several rumors that powerful firms were about to challenge with a petition for injunction, but none has materialized, nor now threatens to.

Both enforcement of the law and industrial committee program are seriously hampered by lack of funds. President Roosevelt has asked Congress for deficiency appropriation of $950,000 for remainder of fiscal 1939 and the Budget Bureau asks $3,350,000 for fiscal 1940. Wage-hour officials do not expect to get their deficiency money until some time in February. Meanwhile, they are borrowing some man-power from other agencies but no cash.

The unique result is this: A large slice of industry, often represented by various of its agents as being opposed to controlled labor standards, is calling for industrial committees and can't get them. Division information is that some 200 applications for appointment of committees have been received.

Thus the division, instead of slapping committees on reluctant business, finds itself trying to meet, with its limited funds, the most insistent demands. That is one main factor in the committee program. The other is that interlacing of all interests in fabrics for home and clothes strongly demands grouping for wage-hour control. That fact emphasized itself during the Textile Committee's deliberations. It is the reason why the Apparel Committee (No. 2) was appointed; why more committees in garments, hats, shoes, etc., will be appointed probably ahead of committees for other fields.

Gorman Bites Hillman

Not as much news as "man bites dog"— but battle has its points

NOT content with the national duel between the A. F. of L. and the C. I. O., textile organized labor is staging a private fight of its own. The signal for the battle was the ruling by a Rhode Island court, noted in these columns last month, that the contract between the United Textile Workers of America and the C. I. O., under which the unions of the former were absorbed by the T. W. O. C., was invalid since the local unions had not been given an opportunity to express their wishes in the matter.

Francis J. Gorman, president of the U. T. W. A. and leader of the notorious textile strike of 1934, immediately grasped this opportunity, and advised all U. T. W. A. locals that, due to the court decision, they were no longer under the jurisdiction of the T. W. O. C. but that the U. T. W. A. constitution governed their conduct and activities. He announced plans for an early convention of the latter organization.

Then followed a battle of repudiation. Sidney Hillman, chairman of the T. W. O. C., ridiculed Gorman's statement; declared Gorman was still on the T. W. O. C. payroll, and said Gorman was merely "seeking a little publicity for himself." Four vice-presidents of the U. T. W. A. representing New England, New York, the Middle Atlantic States, and the South, —all now active in the T. W. O. C.— repudiated Gorman and denounced him for "attempting to foment division in the textile workers' ranks." James Starr, assistant secretary of the T. W. O. C., who served as secretary-treasurer of the U. T. W. A., rejected as an "impertinence" Gorman's demand that he surrender books, records and the treasury of the latter organization. Gorman "is setting himself up as a dictator," declared Starr. The T. W. O. C. dismissed Gorman from its advisory council.

Gorman came back in time for the next morning's papers. He "disqualified" the four above-mentioned vice-presidents from continuing in office in the U. T. W. A., and announced his decision to "oust and supplant" the above-mentioned secretary-treasurer. He paid his compliments to Hillman by shooting back the charges of "dictatorship" at the T. W. O. C. camp. As for his dismissal from the T. W. O. C. advisory council, Gorman said: "That is most amusing and shows how far Hillman has fallen from his former ability as a maker of news. . . . You can't be a member of a vacuum."

Then came more repudiation for Gorman—this time from 70,000 workers in the important American Federation of Hosiery Workers, which declared that Gorman "speaks only for himself and has no textile workers behind him." Similar condemnation came from silk workers in Paterson, N. J., from locals in New England, in New York State, and elsewhere. On the other hand, Hillman referred to "scores of wires and letters" he had received endorsing his action.

Subsequently the executive council of the U. T. W. A. tried Gorman on charges of attempting to form a dual union in the textile industry. After this session, announcement was made that he had been ousted from the presidency of the organization. He was accused of "supporting a dual and antagonistic organization," and also of attempting to usurp the executive council's powers. George Baldanzi, second vice-president of the union, was designated to serve as president until a permanent successor to Mr. Gorman is named. The council reaffirmed its affiliation with the CIO.

What It All Means

Readers should not be discouraged if they do not understand at once what this battle of the gods all means. Some of the best students of the labor-movements confess it's a little confusing. However the easiest way to grasp the situation is by recalling that Gorman has been definitely discontented for some time with his position in the T. W. O. C. This has been an open secret. He was demoted from his position as former chief in the textile labor movement to that of a subordinate. Hillman ran the show, very definitely—and other aides than Gorman were his real source of advice. It was generally realized that sooner or later there would be an open split. The Rhode Island court decision gave Gorman his opportunity, and he grabbed it.

As to the outcome, impartial observers who don't care whether one side or the other wins but who study such upheavals objectively, seem to agree that Hillman has all the advantage in the present fight. He has the support of the most prominent men in the textile labor movement, and of the rank and file of the workers, they claim. Gorman's support seems very thin, they report.

However, all those who know Gorman realize that he doesn't need much of anything, in the way of support, to fight. They sense that, after sulking in his tent in recent years, he is probably "spoiling for a fight." At least part of his prospects depends upon whether or not he will get A. F. of L. support; thus far no stand has been taken by that organization, other than that of an interested onlooker, as reflected in its weekly news-letter.

As for the textile workers themselves, their stake in the impending cosmic battle seems rather obscure. But, then, that is not unusual in textile labor upheavals, as those who were alive in 1934 can testify.

Meanwhile, one can only be thankful for the Gilbert and Sullivan air about the whole show. It added a little lightness to news-reporters' holidays.

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AFL Defeats CIO in Rhode Island Poll

BOSTON—By a vote of 994 to 535 the A. F. of L. was victorious over the C. I. O. as exclusive bargaining agent under the National Labor Relations act at the Atlantic Mills, Providence, R. I., in an election supervised by the Federal board on Dec. 19. Following the ballot, Joseph Sylvia, business agent of the Providence and Woonasquatucket Woolen and Worsted District Council (AFL affiliate), predicted that the Federation would sweep through New England textile centers in 1939. He expressed the hope that the members of the losing group would join the Federation organization in restoring the former United Textile Workers of America. The election quickly followed a decision of Judge Walsh of the Rhode Island Superior Court voiding the 1937 merger of the U. T. W. A. with the T. W. O. C. of the C. I. O. and demanding an accounting of the funds of the T. W. O. C.

FTC Draws Wool Mills' Fire

Industry at hearing condemns proposed labeling as deceitful, oppressive, illegal

THE amazing "rules for the wool industry" proposed by the Trade Practice Division of the Federal Trade Commission may have been promulgated in some final form before this printed page gets into the hands of our readers, or an effort toward the same end by Congressional legislation may have been started.

The proposed rules involve mandatory labeling of wool or wool-like materials, enumeration on invoices, and labeling of wool goods products for the consumer, to show not only percentages of wool and of such other fibers as may be present, but a breakdown of the wool content into "virgin", "reclaimed" and "waste" wool. The rules were issued Nov. 26 following a hearing eight months previous, and final hearings were held in Washington, Dec. 14-15 when objections were registered by all types of merchants and manufacturers through whose hands wool and its products pass en route to the consumer. The rules were favored by consumer representatives, wool growers and two wool manufacturers.

Nearly all the telegrams and letters which came to FTC and were reported at the hearing, spoke in favor of the rules; conversely a majority of those who made personal appearances were opposed to the rules.

Those supporting the rules called them a source of protection to the consumer, of honesty in labeling and of improvement in employment. In fact two women speakers stated that their adoption would solve at once the country's unemployment problem.

Those against referred to the rules as illegal, unenforceable, of no aid to consumer, a source of deceit, oppressive, inapplicable, unwanted by the interested parties, bureaucratic, serving only selfish ends.

Representatives of associations in the carpet, hosiery and underwear fields asked specific exception from the action of the rules; as did also some garment makers and retailers.

Arthur Besse, president of the National Association of Wool Manufacturers, was the high spot of the first day's session and his shadow overhung the second day as most of the speakers in favor of the rules quoted him and offered rebuttal testimony. He stressed the following points: 1. Rules will promote rather than prevent misrepresentation, deceptive concealment and other unfair methods of competition. 2. Regulations cannot be made effective, no laboratory test is possible, nor is there any check on imports. 3. Proposals represent not an attempt by an industry to prevent unfair methods of competition, but bureaucratic control of industry at behest of special interests. 4. Proposed rules are based on erroneous interpretation of the law.

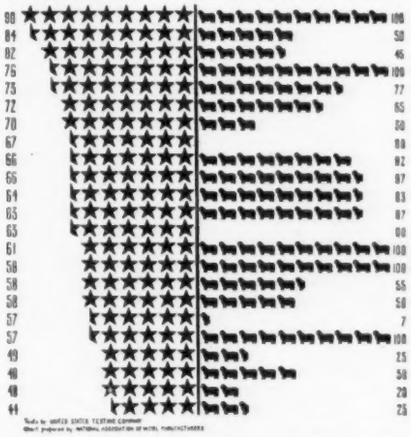
He said "It is not reasonable to continue the fiction that this is a trade practice conference," pointing out that the original meeting was called at the behest of two wool grower groups and two mill men—"certainly not the wool-textile industry." Since that first hearing Mr. Besse stated, the agents of the Fair Trade Practice Division have confined themselves to visiting the Forstmann plant and have not conferred with any member of the industry known to be opposed to the proposals.

In conclusion he quoted from the Schechter Poultry decision of the Supreme Court to clarify the difference between setting up of affirmative codes of business conduct and the mere striking down of illegal practices, the former held as unconstitutional delegation of legislative power.

F. E. Ackerman, of Forstmann Woolen Co., read the brief of Julius Forstmann, in favor of the rules, stating that the public is entitled to know whether products it buys are of virgin or second-hand wool. He also quoted the charge that insufficient protection of American army uniforms with a large percentage of reclaimed wool during World War, was to a considerable degree the reason for widespread epidemics of pneumonia and influenza in the training camps during the winter of 1917-1918. Curt Forstmann, of Forstmann Woolen Co., asserted that regulation of woolen and worsted industry must come through demands of the consumer.

On Dec. 20, the National Association of Wool Manufacturers, through its counsel filed a request for a hearing before the full Federal Trade Commission on the trade practice rules, the hearing to be on the basis of existing record. Following this E. F. Kennedy representing farmers' groups wrote to FTC taking issue with Mr. Besse and requesting issuance of the rules. A few days later FTC denied NAWM request.

Relationship of "Fabric Merit" to "Virgin Wool" content



The "fabric merit" factor is based on a rating of strength-weight ratio, fiber length and percent of frayed and broken fibers; each star represents 10% with the highest rated fabric set at 100. "Virgin wool" content is as stated by the manufacturers of the fabrics tested and obviously bears no relation to the merit rating of the same fabric which appears on the same line.

At the hearing the following spoke against the rules:

Earl Constantine, National Association of Hosiery Manufacturers; E. E. West reading brief of Roy Cheney, Underwear Institute; Ralph N. Jones, Utica Knitting Co.; Herbert Gutterson, Institute of Carpet Manufacturers of America; R. G. Knowland, Bigelow-Sanford Carpet Co.; J. H. Stursberg, Livingston Worsted Mills; National Knitted Outerwear Association; Sylvan Stroock, S. Stroock & Co.; Chas. H. Haskins, National Association of Waste Material Dealers; David Drechsler, Clothing Manufacturers Association of America and seven allied groups and firms; Max H. Zuckerman, United Infants and Children's Garment Manufacturers Association; H. Goldstein and Charles Baker, five cloak and suit associations; Milton J. Levy, National Cloak and Suit Recovery Board; J. D. Wolff, Kaufman Dept. Stores and National Retail Dry Goods Association; E. F. Kelley, Sears Roebuck Co.; Irving C. Fox, National Retail Dry Goods Association; Ephraim Freedman, R. H. Macy & Co.

The following spoke in favor:

F. E. Ackerman, Forstmann Woolen Co., reading brief of Julius Forstmann; Curt Forstmann, Forstmann Woolen Co.; T. R. Marshall and J. B. Wilson, National Wool Growers Association; Rep. Geo. N. Segar of New Jersey; Mary McGrady Fleming, Truth-in-Fabric Committee of AFL women; John M. Baer, Union Label Trades Dept. of AFL; Francis J. Gorman, United Textile Workers; S. S. McClosky, National Grange; Mary Puncke, Farmer's Washington Service; Julia K. Jaffray, New York City Federation of Women's Clubs; Margaret Dana, Consumers Forum of *Atlantic Monthly*. Approval by telegram came from the following: H. J. Hewat, Strong, Hewat & Co.; New Hampshire Federation of Women's Clubs; Columbia (Mo.) Women's Club; Conference of Jewish Women's Organizations, and others.

Power Plant Flexibility

Plus economical operation has been achieved by Collins & Aikman in new installation

By W. A. PARKER
Chief Engineer, Collins & Aikman Corp., Philadelphia

OPERATION of a recently installed boiler and turbine-generator has resulted in a considerable reduction in power costs at the West Philadelphia plant of the Collins & Aikman Corp. The greater economy of the modern boiler equipment has reduced steam costs. The turbine-generator serves not only as an efficient producer of electrical power, but also as a valve to reduce steam from the higher boiler pressure to the pressure required for process steam. In this way steam for the 20-lb. process line is obtained without losses formerly experienced with reducing valves.

In making this installation, which was engineered and constructed by H. M. Wilson Co., consideration was given to the possibilities of future expansion and change-over to high-pressure operation. For instance, although the turbine now operates at 225 lb. pressure and zero degrees superheat, it is designed to operate, with minor changes, at 450 lb. and to be equipped with a superheater and possibly an economizer. Accordingly, the new equipment can easily be fitted into a future set-up for high-pressure operation, at minimum cost.

The boiler is a 650-hp. 4-drum, bent-tube Riley Stoker Co. unit. It has 8,560 sq.ft. of total heating surface, of which 2,110 sq.ft. is provided by four water walls. The furnace volume amounts to 4,080 cu.ft., which is ample to permit operation at considerable overloads. The boiler is equipped with steam-atomizing oil burners utilizing Bunker-C fuel oil. Burner boxes are so designed that firing can easily be converted to pulverized coal should the price differential between coal and oil warrant.

A 500-hp. and a 430-hp. boiler, which were formerly coal fired, have been converted to oil and are used to supplement the new unit. A small, gas-fired boiler is used in summer for starting the atomizing burners on the main units.

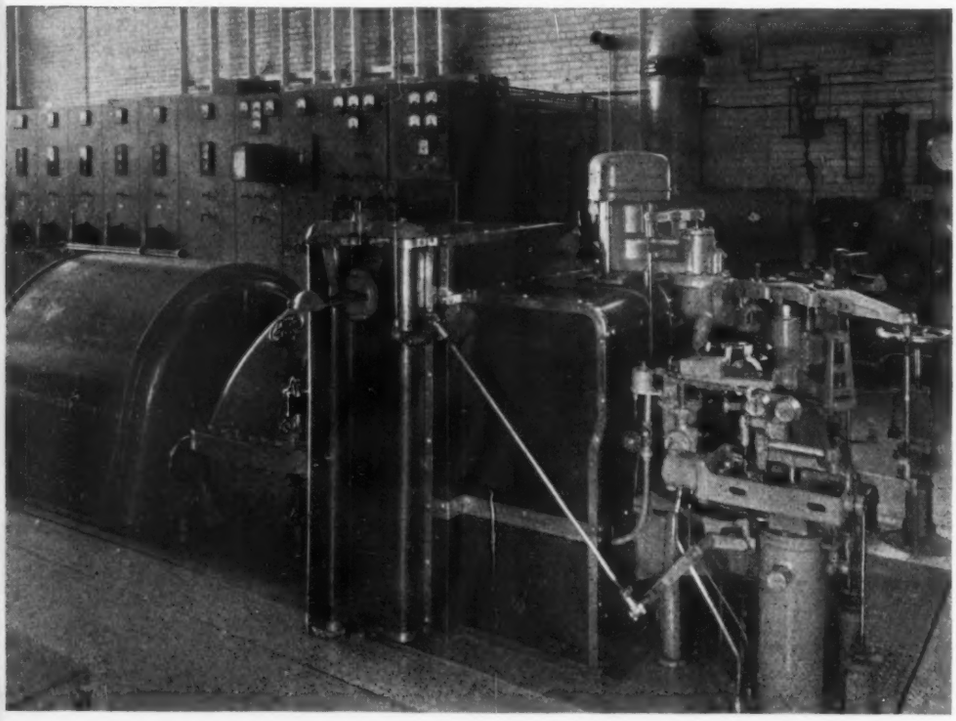
A B. F. Sturtevant silent-vane fan in the basement provides the forced draft for the new boiler. It is driven by a 45-hp. motor, and has a capacity of 34,000 cu.ft. per min. at 110° F.

The Cochrane Corp. continuous blowdown system is adjusted to maintain a concentration not exceeding 150 grains. Two 3-in. centrifugal pumps supply feedwater from the Cochrane feedwater heater to all boilers. One pump is driven by a 60-hp. motor; the other by a steam turbine. Either pump will deliver 200 gal. per min. of water at 212° F. against a head of 270 lb.

Combustion is automatically controlled from the 225-lb. line. The fuel supply and the forced-draft damper are controlled by the combustion regulator. Although there are wide fluctuations in the steam demand, regulation of boiler pressure is excellent.

In order to make available a comprehensive picture of boiler output and performance, the new boiler is completely equipped with Brown Instrument and Bailey Meter recording instruments. These are mounted on a panel adjacent to the boiler. Included among the instruments are a 2-pen flowmeter, recording steam and air flow; a 4-point draft gage, indicating pressure in the wind box of the burners, furnace pressure, uptake pressure, and fan pressure; a CO_2 meter; a stack-temperature recorder; a meter recording concentration and feedwater temperature; and a flowmeter on the feedwater inlet.

At present, the normal evaporation of the boiler is 15 lb. of steam per 1 lb. of oil. Under test the boiler developed 15.35 lb. of steam per 1 lb. of oil at 187% capacity, and operated at an efficiency of 80.3%.



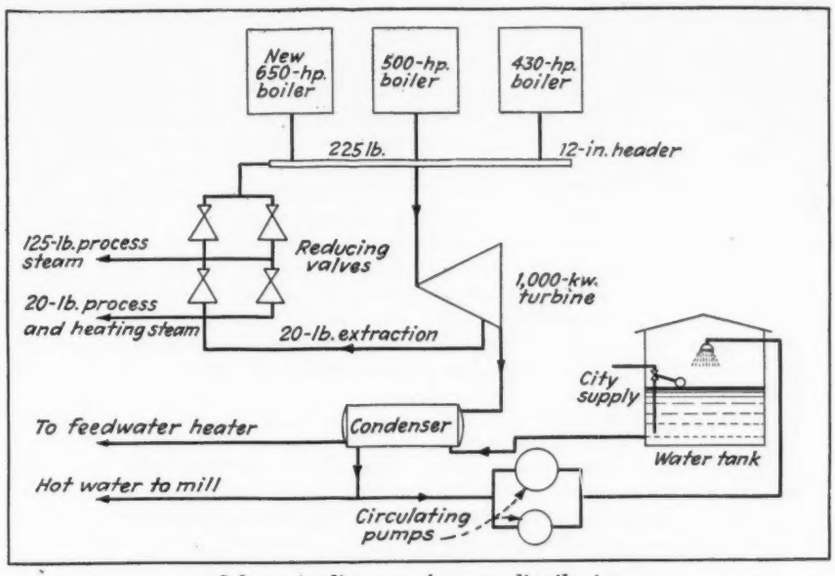
Turbine and governing mechanism recently installed in Collins & Aikman power plant. Back left, switchboard; back right, 20-lb. reducing valve

Process Steam

Process steam is required at 125 lb. and 20 lb. The old boilers delivered steam at 125 lb. to the higher pressure line, and the 20 lb. supply was obtained through reducing valves. The new 1,000 kw. General Electric turbine serves as a reducing valve from the 225-lb. boiler pressure to the 20-lb. line which supplies the greater quantity of process requirements. The 125-lb. process steam is obtained through two Swartwout Co. reducing valves. Two additional reducing valves tie in the 125-lb. line with the 20-lb.

line; these valves automatically maintain the pressure in the 20-lb. line when the turbine is shut down, or when it cannot supply the entire 20-lb. demand.

Although extracting at 20 lb., the turbine exhausts a portion of its steam to a 950 sq.ft. C. H. Wheeler surface condenser capable of absorbing 15,000 lb. of steam per hr. Condensate is handled by two motor-driven pumps having a capacity of 45 gal. per min. against a 75-ft. discharge head. A 30,000-gal. outside tank supplies cooling water for the condenser. The circulating water is handled by two pumps, with capacities of 1,250 and 850 gal. per min., respectively. The return is sprayed into the outdoor tank. As hot water for mill use is taken from the line leaving the condenser, water level in the outdoor tank is maintained by a float valve which cuts in the city supply.



Schematic diagram of steam distribution

Formerly Purchased Power

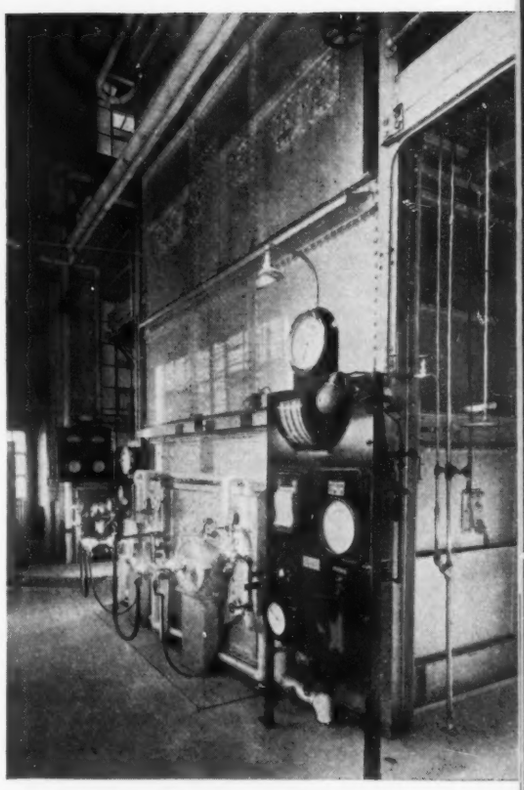
The plant formerly bought all its electrical energy from an outside power company. Now, although most of the energy is generated in the power house, the plant remains tied in with the outside source. This is necessary because the turbine output is partially determined by the process steam requirements, and, under certain load conditions, cannot handle the entire electrical load of the mill. To guard against the contingency that the outside power supply might fail while the plant is operating under a heavy load, a time relay has been provided to cut out automatically any predetermined departmental feeder, and thus relieve the load. This relay is set to cut out 20 min. after the emergency occurs, as it has been estimated that the turbine can properly maintain speed for that 20 min. period of time.

The proportion of the total mill electrical load that can be delivered by the turbine depends upon the demand for 20-lb. steam and the temperature of the condenser recirculating water. As the demand for 20-lb. process steam increases, the turbine demand for steam increases and the electrical output rises. However, when the proportion of steam passing through the condenser increases, the temperature of the circulating water rises and may exceed the maximum permissible operating temperature of 120° F.

This temperature is also affected by the demand for hot water in the mill. When the circulating water temperature approaches the allowable maximum, a temperature-actuated relay operates a small motor-driven device which gradually closes the throttle on the turbine. The reduced output of the generator is immediately picked up by the utility line, which operates in parallel. On the other hand, as the demand for process steam rises, less steam goes to the condenser, the circulating-water temperature drops, and the turbine gradually picks up part of the electrical load carried by the power company.

Power Distribution

Power from the outside supply comes in at 13,200 volts and is reduced to 480 volts by three 667-kva. transformers. To handle the output of the new 1,250-kw., 60-cycle, 3-phase GE generator in the power house, as well as the incoming utility power, a 10-panel GE electrical switchboard has been installed. This board is completely equipped with flush-mounted instruments and metal-clad switchgear.



New 650-hp. boiler at C & A

Power is distributed to the mill at 440 volts. A separate circuit breaker controls the feeder to each department. Mounted on each distribution panel is a totalizing kilowatt-hour meter which records the amount of electrical energy consumed by each department. A small synchronizing panel permits the operator to parallel the mill generator with the utility supply. Reverse-current relays prevent feeding back into the power company's lines.

Several banks of static condensers, strategically located throughout the mill, give an unusually good power factor. An additional 200 kva. bank is connected across the utility feeder at the power house. With this set-up, the company is able to meet the minimum power factor exempted by the utility company, and at the same time operate its own generator at over 90% power factor.

Lighting power, at 110 volts, is supplied by banks of dry-type transformers located in each department. This equipment, which requires very little maintenance, is mounted over doorways or high on walls, where it is out of the way.

To permit an absolute check on the consumption of steam and electrical energy, the flow to each department is carefully recorded by individual flowmeters and kilowatt-hour meters. Collins & Aikman finds it just as advantageous to keep an economical eye on the consumption of power-house products as on their generation.

Visual Production Control

Systems must be simple, yet complete; indicating boards offer many advantages

By CHARLES D. WARREN

MAINTENANCE of a good system of visual production control prevents machinery from standing idle needlessly, and makes it possible to advise customers accurately and promptly regarding delivery dates. An important phase of such control concerns the transmission to manufacturing departments of information which will enable them to proceed, accurately and strictly, according to specifications. Upon approval of a sample of a new fabric which the mill plans to manufacture, a standard specification sheet is prepared. This should contain descriptions of all yarns to be used, blends, type of put-up desired, weights, sizes, colors, and every other detail required for manufacture on a production basis of an exact duplicate of the approved standard sample. In addition to forming the basis of all manufacturing operations, these specification sheets are also used for costing purposes; therefore, they must be accurate, as well as complete in every detail.

Specification sheets must be calculated in a manner which will provide the quickest and most economical handling of the yarn or stock in process. From these sheets, manufacturing work orders are prepared for all departments and, in the case of a multiple-plant set-up, for all mills. These work orders cover every operation, from the raw material through picking, carding, spinning, weaving or knitting, etc. The type of order, of course, will vary with the particular type of cloth or yarn involved. However, each order, whether it be a blending order covering fibers or grades of raw materials to be mixed, or a weaving order covering ends, picks, reed, type of weave, etc., must be complete, accurate, and easily understandable by the workmen in the plant. Issuance of work orders must be followed by a production schedule showing each department head when he may expect work to come through from the preceding department, so that he, in turn, can schedule the work on his machinery.

Every manufacturing department sends to the planning department reports covering each day's work. These reports are very simple in detail and carry only information absolutely essential to operation of the production control system, the feeling being that the foremen or supervisors of the various manufacturing departments must not be burdened with unnecessary or cumbersome reports and must be relieved of all possible clerical duties, so they can be available almost exclusively for production duties. Department heads, in turn, are given by the planning department such reports as will enable them to be fully informed regarding the efficiency of their department, and such other information as they may desire to aid them in the proper operation of their productive machinery.

Control Coupons

From each manufacturing order sent to the productive departments is detached a coupon, which remains in the central office and is used as a process record for the purposes of follow-up and for inventory control. These coupons are moved from "on order" to "process" and to "stock" as processing reports indicating the progress of the material in question are received in the office from the manufacturing departments. Only the most meager information is contained on these coupons and only such details as date processed and machine number are added to them as mill reports are received.

Dispatch offices, under the supervision of the central control department, are maintained throughout the plant or plants. Through them, manufacturing orders are dispatched and followed up, and all records intended for the central office are transmitted.

Since each particular mill has its own peculiarities, and the forms, orders, and reports required must be designed accordingly, no attempt will be made to illustrate those mentioned in this article. Always, however, they must be as simple as possible, carrying only details necessary to accomplish the purpose for which they are intended.

It is vitally necessary, if any form of production control is to function satisfactorily, that the machinery involved be properly laid out and scheduled so as to operate as efficiently as is physically possible. Good scheduling prevents the jamming-up of one department to such an extent that men in other units have to be laid off temporarily while the busy department works overtime. In order to describe how such scheduling can be carried out, we must first assume that we have sufficient orders on hand on which to operate available machinery.

The writer strongly advocates use of a visual control board. While this is not definitely essential to the opera-

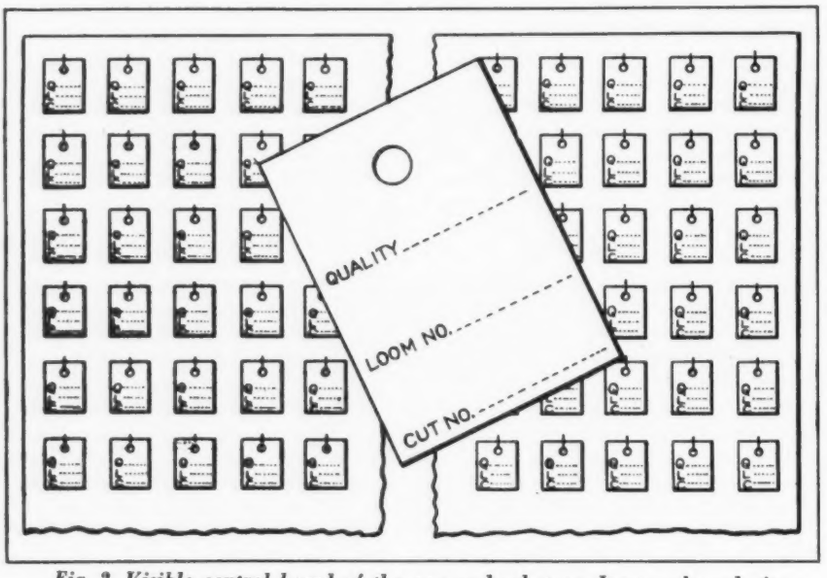


Fig. 2. Visible control board of the peg or hook type. Inset, enlarged view of tabs used with this board

tion of an efficient production-control set-up, it is of great assistance. With visual planning and control, it is possible at any time to ascertain, with little effort, the date of finishing (and consequently the delivery date) of any order in the plant. Further, when in an emergency it becomes necessary to jump one order ahead of another, a glance at a control board will make possible immediate determination of just what changes are possible.

There are numerous types of control boards in use. While the principle of all visual controls is practically the same, the type of board to be used differs with the particular machinery involved, the type of cloth being manufactured, and the information it is desired to obtain. Some production control men advocate use of a board similar to that shown in Fig. 1. Along the top of the board, which may be metal or wood, is a strip marked off with the days of the month. Slides at top and bottom can be moved along at will, to denote passage of time. The board is fitted with a series of long metal strips, each strip fastened only along its bottom edge, and each representing a different spinning machine, loom, knitting machine, or a group of machines, provided they are all on the same type of fabric.

Inserted into, and along, these strips are small pieces of cardboard representing a spinning lot, a cut of cloth, or any unit of manufacture peculiar to the type of operation involved. For example, if it is known that it will take four days to weave a cut of cloth, a strip of cardboard as long as the space allotted to four days is placed in the groove assigned to that loom.

Boards of this type are easy to read, and to make delivery promises requires merely looking at the strip representing the cut of cloth in question and noting at the top of the board the date when that particular cut of cloth is expected off the loom.

To carry explanation of this system further, let us assume that an entire warp is to be woven out. In this case, a colored cardboard strip representing the entire length of the warp is inserted in the groove, and white cardboards representing individual cuts are inserted over the colored strip. By glancing at the top of the board, one can ascertain just how long a loom will be tied up with a particular warp and just when it will be available for another warp. With this information available, the warping department can easily be controlled and a daily program given it, far in advance of actual requirements, by transcribing information from the board. Further, from the information regarding number of warps wanted, it is possible to determine for the spinning department the amount of yarn necessary to make the required warps; and so on, right back to the raw supply.

Peg- or Hook-Type Board

Another type of board, more simple to operate, is the peg or hook type. Whereas the first board described will be found most useful in mills which manufacture for specific delivery of particular styles, the peg type is better for mills which manufacture for a general gray-goods stock, because in such mills it is most desirable that the planning board show the availability of machinery for new orders, or for new types of cloth, in addition to indicating just when particular pieces will be available.

On boards of this type, pegs, hooks, or spring clamps are arranged to represent the various machines on which it is desired to schedule production. When a report is received of work started in a particular department, there are attached to the proper pegs or hooks on the control board small tabs or coupons, each hook as many tabs as there are units of the work started. Again, as units (e.g., cuts of cloth, etc.) are reported completed, tabs are removed from the hooks.

From the board, reports—weekly or daily, as required—are made up, showing the number of units left in each machine. From the number of cuts woven in a given period, the rate of warp consumption can be calculated, and from this can be ascertained how many looms will be running out in a given time and will, therefore, need new warps. From these figures the warping department can be guided and the yarn supply regulated.

All sorts of indicators may be used in conjunction with visible control boards, to indicate rush orders, stock orders, goods or yarn to which special attention must be accorded, machinery under repair, etc.

Information obtainable from visual control boards, primarily from a weaving department standpoint but generally from the standpoint of any type of production machinery, will include the following: the number of cuts of any quality or class left on warps and, by further calculation, the pounds of yarn represented by yarn in looms; the number of looms unassigned and, therefore, available for use; the actual existing situation on all looms at any given time, from which can be ascertained the number of warps which are running out and will have to be replaced.

(*Previous articles by Mr. Warren on the subject of Production Control have been published in the Feb. 28, 1937 and July, 1937 issues of* TEXTILE WORLD.—*Editor*)

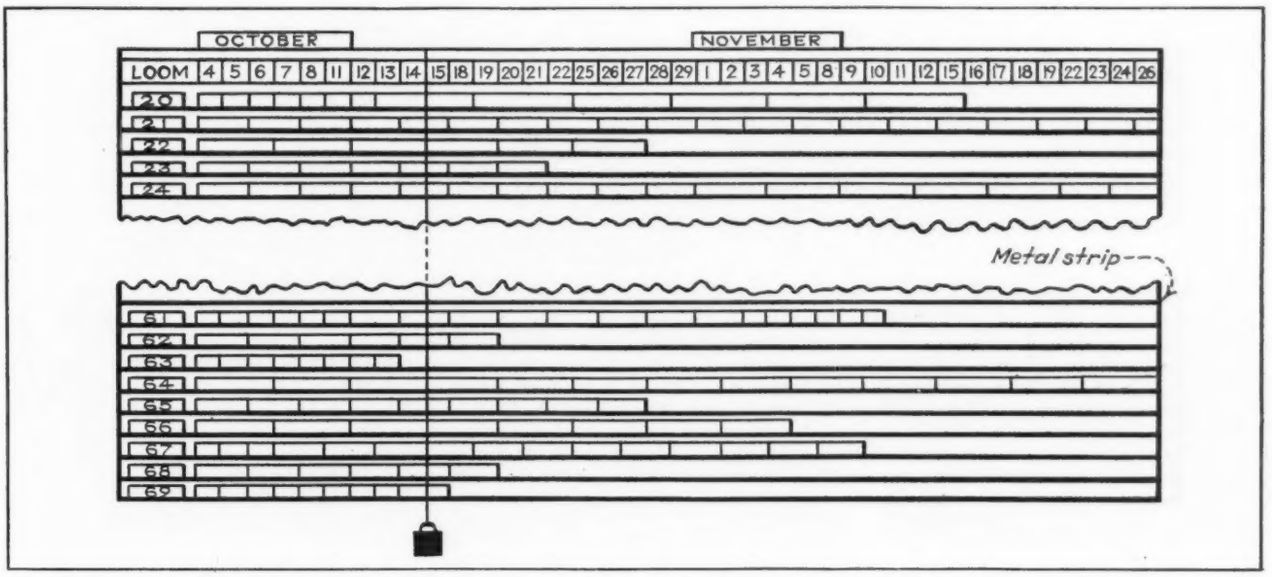


Fig. 1. Visual control board on which cardboard strips indicate time required for completion of unit operations

Textiles in South America

Chile has progressive cotton industry and shows favor to American machinery

By LOUISE C. MANN

THIS ARTICLE continues the South-American series started last September with Argentina and supplemented in October with Brazil and Ecuador **—Editor.**

PRODUCTION of cotton cloth in Chile has increased 40% since 1932, and 600% since 1929. In 1932 Chile produced 3,864,866 meters; in 1937, 19,094,671 meters. Consumption in 1937 was about on the same level as in 1929, while in 1932 it suffered a drop to 25% of this level. Imports of cotton cloth have of course, declined radically. The 4,500,000 population is largely in low income brackets, a fact true even of the middle class Chilean.

Although in 1938 the rate of production has leveled off somewhat, the total cloth production declining from 308,800 in February 1937 to 263,700 in February, 1938, Chile did not feel the effects of the 1938 depression. The decline in foreign trade only stimulates the production of domestic textiles, and there are at present no heavy stocks on hand.

The important factors which have led to production of textiles by Chile are depreciation of the peso, shortage of foreign exchange, and imposition of a high protective tariff.

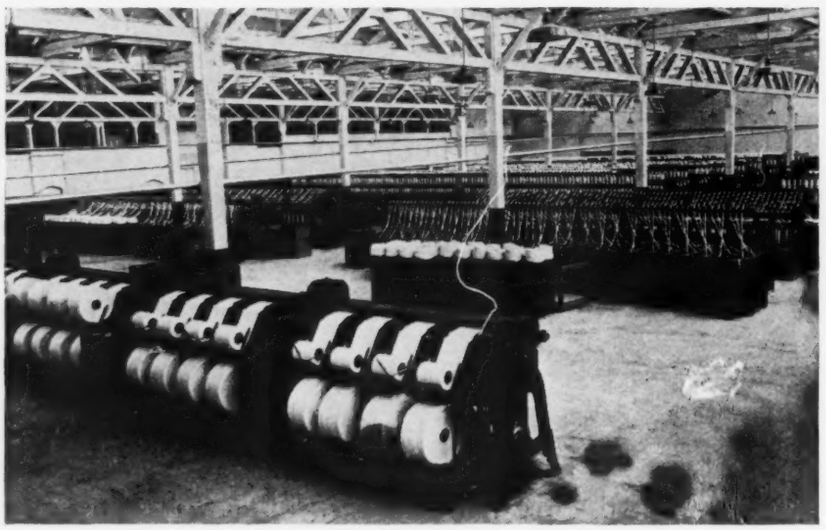
That Chile is becoming more self-sufficient in regard to cotton-textile production is shown by the fact that the importation of cotton textiles in 1937 dropped to 8,068 tons from 11,236 tons in 1936. The reverse trend however, is true for woolen cloth.

Despite general decline in importation of textiles in 1937, those from Germany and Italy showed an increase, the result of export subsidies by those countries. Imports from Japan have shown a remarkable decrease, declining from $1,980,000 in 1935 to $345,000 in 1937, said to be the result of too low quality.

From United States, textile imports dropped from $2,211,000 in 1936 to $1,624,000 in 1937. Principal textile imports from the United States are cotton yarn and osnaburgs. Recent completion of two large spinning plants in Chile by Yarur Bros. and W. R. Grace & Co. will tend to cut this country out of the markets for yarn, while Japan is still a severe competitor in the sale of osnaburgs.

The above figures were compiled by the National City Bank in Santiago.

Workers' houses built in 1934-5 for Grace Cotton Mill



Saco-Lowell machinery in W. R. Grace Mill at Chiguayante

Cotton Industry Still Expanding

Chile boasts the most modern cotton mills in the world, and at present their business is perhaps the best in all of South America. They are making plans for further expansion, and have orders for two months ahead.

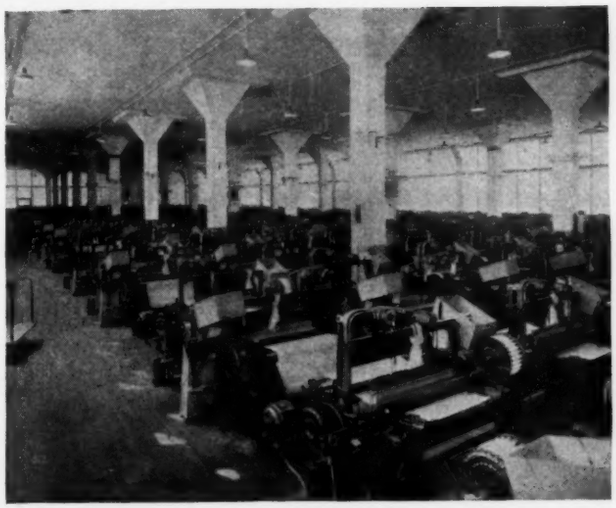
The newest plant is that of Yarur Bros. at Santiago. Although opened in the latter part of 1937, it did not begin full time operations until this year, and has not yet reached full capacity. While the Yarurs claim to have the most modern cotton mill in the world, the W. R. Grace & Co. Chiguayante mill at Concepcion is the largest in Chile, and the new spinning machinery is the same date as that of Yarur's. Grace last year installed the latest type of dyehouse equipment.

The W. R. Grace & Co. cotton mills are now running at full capacity, and selling all their production. They are still installing new spinning machinery and looms. Their spinning plant at Chiguayante is running 24 hours a day per 6½ day week, while the rest of the mill is running at full capacity on one 12 hour shift.

There are now 1500 employees, against 1200 in 1937. Their production has increased from 13,000 pieces per month in 1935 to 27,000 in 1938.

Yarur Bros. at present is running at 70% of capacity, but production will be increased as soon as more employees are trained. Twelve American technicians of the training staff have already departed, leaving five foreigners to complete instruction of native workers. About 500 more operatives are to be added to the force of 1200, to work the mill 3 shifts of 8 hours a day per 6 day week, instead of the present 2 shifts of 10 hours each per 5 day week.

The Yarur plant has a capacity of 15,000,000 meters per year, depending on the quality of the cloth, and represents an investment of $3,000,000. All the raw cotton is purchased from the United States, involving an annual expenditure of $1,000,000.



Draper looms at Yarur Mill

Whitin spinning frames in Yarur mill

W. R. Grace & Co. claim superiority for their cotton goods, because they are manufactured from Peruvian cotton, which has a longer staple than American cotton, but is **no** more expensive due to its more convenient location. The resulting product stands a test of 150 lb., while that made from American cotton tests only 120 lb.

Favor American Machinery

The Yarurs are very enthusiastic about their modern American machinery. They were the first to introduce the Whitin machinery into South America, and they are much pleased with the results. Their dyeing and bleaching machines are German.

The new Grace spinning machinery is Saco-Lowell, imported in 1935, 1936, and 1937.

Both plants have experimented successfully with the use of staple rayon. This fiber is imported from Italy and Germany.

The Chilean market is not yet receptive to fast colors, although Yarur claims to be using them. Since there is no law in Chile about the accuracy of labels, the customer is unable to be sure that goods purchased as fast colors will really be fast. There is much competition from cheap Japanese gray goods dyed in Chile and sold falsely as fast colors.

The purchasing power in Chile is so low that a difference in price is more important than a difference in quality. It is also alleged that laundry-fast colors are unnecessary in some of the country districts because the people seldom if ever wash their clothes.

Labor Conditions

Although the Chilean law requires that 85% of the textile workers be Chilean nationals, in reality 98% are Chilean. Foreign technicians are forbidden to enter the country if a Chilean can be found to do the work.

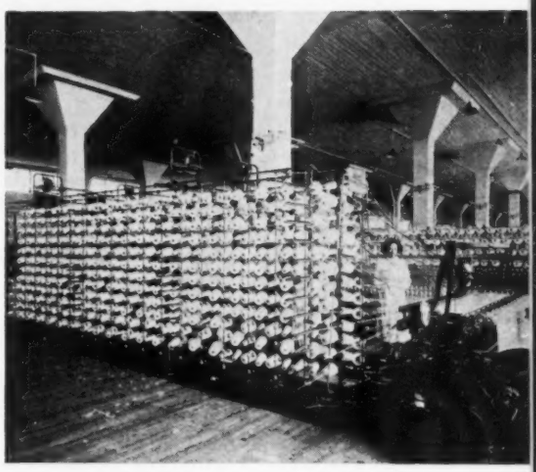
The average textile wage is 15 pesos a day in Santiago and Valparaiso, and 10 pesos in the south (about 60 and 40c respectively). The wages in the south were even lower until recently, when they were raised on account of inflation, although not sufficiently to counteract the actual loss in purchasing power.

The textile plants are required by law to install baths and nurseries. Employees are required by law to bathe at least once a week. Yarur employs 500 women, but may have to eliminate them when they change to the 8-hour day with 3 shifts, because in Chile women are not allowed to work at night. Yarur has installed a modern infirmary and the mill is well equipped with washrooms.

The Chilean social laws are strictly enforced, and are favorably regarded by employers. An exception might be the new decree of preventive medicine, the administration of which has not yet been enacted into law. It is feared by some that political abuses may creep in.

The Chilean textile worker is able and quick to learn, but prone to excessive drinking which is the despair of the employer. Special fines are resorted to for absence on Mondays.

W. R. Grace & Co. makes white muslin shirting for the country trade, of much better quality than the osnaburg. The different grades are identified by trade names and pictures. The highest price cloth, which wholesales at 4.80 pesos per meter, is called "Kill my Competitors," dramatized by a picture of a knife. The cheapest grade at 2.30 pesos, is "Como es posible" (How is it possible?) Other popular brands are the Duck, the Locomotive, the Globe, Four Stars, and Victoria, all accompanied by appropriate pictures. Osnaburgs used for flour sacking as well as clothing,



Universal Winding Co.'s high-speed warper at Yarur mill

wholesale at 2.30 pesos per meter.

Efforts to nationalize the Chilean woolen textile industry have not been entirely successful. In 1937 the production of woolen cloth declined to 3,850,622 meters from 4,210,002 meters in 1936, while imports rose to 732 tons in 1937 from 686 tons in 1936.

The Chilean mills make carded woolens, but not worsteds. The largest sale of cheap woolens is for pantaloons for the "huasos", the cow-boys and farm-hands in the south.

The market is not large enough for the manufacture of high-grade woolens, especially in any variety of design. English goods is imported by the cut (3 meters), just enough material for one suit. Some neutral designs are imported by the piece, which makes 17 suits. The social circle in Santiago is so small that mass production in Chile would not be feasible, not to mention the sentiment in favor of imported goods. For women's clothes, Chilean mills are unable to meet the competition of the wool goods imported from Germany.

Robot Cotton Pickers . . .

Many problems still to be solved before such pickers are an accomplished fact

IN A RECENTLY published series of articles by outstanding agricultural engineers who go into the intricacies of mechanical cotton harvesting we find they all agree, after many years of investigation and intensive research in connection with the developments of mechanical cotton pickers, that there are still many problems to be solved and much to be accomplished.

Geographical, horticultural, and mechanical problems must be taken into consideration and coordinated into a plan of cohesive development before robot cotton pickers can accomplish much more than they do today.

In geographical problems not only the section of the country must be considered but other factors which hinder the use of a mechanical cotton picker. These include the topography of the field, such as percentage of slope, straightness of rows, number of terraces; size of the farm; average yield; price of cotton and availability of labor at harvest time.

When horticultural elements are considered it must be remembered that cotton is grown in great variety and under widely different conditions: plants varying from 6 or 8 in. to 5 or 6 ft. in height; the length of the staple from 5/8 in. to 1¼ in.; the yield from less than one-fourth bale to as high as two or more bales per acre. Under certain conditions the foliage on the plants is extremely heavy; under other conditions the leaves are destroyed by worms leaving only the skeletons. Sometimes the rows are infested by weeds, vines and grass.

The fact that there are definite field problems and that the harvest period, or actual available time for field experimentation, is limited slows up the cycle of progress in the development of mechanical pickers. Even the simplest basic requirements of a successful cotton picking machine are difficult to achieve. Some are: It must harvest a high percentage of the mature cotton, with a minimum dropped on the ground. It must not seriously damage the immature cotton bolls on the plants. It must not seriously damage the cotton, so that the highest possible grade of ginned cotton may be obtained. It must have sufficient capacity to make its operation profitable, as compared with hand-picking. It must gather as clean a sample as possible, with a minimum amount of

leaves, stems, hulls, weeds, etc., entrained in the lint. It must be mechanically sound in design so that it will provide satisfactory, consistent, and dependable operation, and must be simple enough so that both the operation and the ordinary servicing of the picker can be done by farm labor. In order to afford most profitable utilization, the mechanical harvester preferably should be an attachment for a farm tractor rather than a self-propelled machine—in order that the tractor may be put to other uses.

The economic answer is the only correct answer as to whether or not the mechanical harvester has made good. On that basis, the thousands of ginning tests at the United States cotton ginning laboratories prove that it has not come up to expectations, because existing conditioning, extracting, cleaning and ginning machinery cannot fully restore to originally high-grade cotton, those qualities that have been impaired by rough harvesting or improper handling. Until these conditions have been overcome the mechanical picker has not arrived.

At the gins during 1937 it was possible to remove an average of only 53% of foreign matter (mostly leafy trash) from the mechanically-picked cotton as compared with 66% from a total 4.2% of foreign matter (mostly burrs) in the hand-picked cotton.

On the average, spindle pickers produce lint from one to two or more grades lower than that from corresponding handpickings. This lower grade yields much more manufacturing waste than hand-picked cotton from the same field and similarly treated. Early harvestings are more wasty than later harvestings because of the high percentage of green leaf picked with it.

Objectives of mechanical harvesting of cotton are clearer today than ever, and include: (1) entirely replacing manual harvesting by mechanical methods; (2) supplementing manual labor continuously during the cotton gathering season; or (3) cleaning up all late-season portions of open cottons remaining after defoliation of the cotton plants.

Results, though clear, are not as encouraging as was hoped for. Difficulty of meeting basic requirements has defeated hundreds of picker-prospects. Today out of all the patents granted since 1850 on mechanical cotton pickers only four remain: International Harvester Co.; Rust Brothers; The Wind-Roll Cotton Picker Co.; and the Texas Agricultural Experiment Station.

We have not yet reached the goal of producing mechanically-harvested high-grade cottons with our present-day pickers and gins. The ginning industry has yet to find a satisfactory means for overcoming the difficulties presented in the ginning of mechanically-picked cottons of existing characteristics. To date the work has consisted in producing a machine to fit the cotton; future work must include that of producing cotton and cotton fields to fit the machine.

The accompanying article is a summary of a series of articles printed in the September, 1938, issue of *Agricultural Engineering* by:

E. A. Johnston, "The Evolution of the Mechanical Cotton Harvester." (Vice-president in charge of engineering, International Harvester Co.; 1938 recipient of the Cyrus Hall McCormick Gold Medal awarded by American Society of Agricultural Engineers.)

Charles A. Bennett, "The Relation of Mechanical Harvesting to the Production of High-Grade Cotton." (Senior Mechanical Engineer, Bureau of Agricultural Engineering, U. S. Dept. of Agriculture.)

W. Waterman, "Some Needs in Cotton Harvesting Development." (For several years engineer for George R. Meyercord & Associates.)

H. D. Walker, "Mechanical Cotton Harvesting Experience in California." (Professor of Agricultural Engineering, University of California; fellow A.S.A.E.)

H. P. Smith, "Progress in Mechanical Harvesting of Cotton." (Chief, division of agricultural engineering, Texas Agricultural Experiment Station, A. & M. College, Texas. Member A.S.A.E.)

Preventing Barré

Proper loom adjustment eliminates many causes

By GEORGE GRIESS

ALL silk and rayon weave-room overseers will agree that it is often difficult to decide whether a barré effect has been caused by the loom or is only the variation of the tints used to identify the different twists in the filling. To be on the safe side, one must suspect the loom in all cases called to his attention.

The commonest fault, and also the easiest to detect, is that caused by a take-up motion which is not functioning properly. Any defect in the action of this motion, such as improper meshing of gears, or loose studs, hold pawls, or pull pawls can be seen at a moment's glance and eliminated before much damage is done. But there are also more difficult cases—the kind one would like to pass off as filling barré, because it is hard to discover the real trouble. The purpose of this article is to outline the method of inspection and correction the writer follows on a loom suspected or producing barré and uneven fabric.

Uneven Let-off

First, run the loom for a few minutes, observing the take-up gear to see that it picks every tooth. Then, notice if there is any unevenness f the warp-beam let-off. If rope let-off is in use and is at fault, the beam head will be found to move with a jerking motion. Ropes which have become badly worn or so soft that they flatten out too much against the beam should be replaced. In other instances, all that is necessary is to turn the ropes over, or to use a different method of wrapping.

However, if the ropes are in good condition and still a jerking motion is evident, the use of a powder such as French chalk, powdered mica, or the like, will do the trick. One of the best insurances against let-off trouble is to have loomfixers apply this powder to ropes and beam heads at the start of each day's work. This practice will counteract the effect that changing humidity has on the ropes and prevent them from sticking.

Next, check up on the lay connections. These sometimes work loose, or through wear develop play at their bearings. When such a condition exists, the lay will not strike the fell of the cloth in the same manner on every pick. The result is a fine barré. Often the pins in the reed stand or the bearings on the hangers become worn but, due to the pressure of the back stay springs on the reed case, the existing play will not be noticeable. A vigorous shaking of the hand-rail at each end will show this up. The necessary correction is up to the judgment of the foreman—either replacement of worn parts or refitting with new studs and bushings may appear more economical. Some loomfixers attempt to correct loose-fitting bearings by setting them at a slight angle. Needless to say, this practice is foolish and costly in the long run.

The next step is to test the bearings on the take-up roll. The method the writer uses is outlined below.

Bring the lay to front center and set the brake. Allow the full weight to remain on the warp. Now, raise the hold- and pull-pawls so that the pick wheel can be moved freely. By alternately allowing the cloth to slacken against the reed and pulling up on it, any jumping of the shaft in the bearing, or movement of the shaft in the take-up roll itself, can be observed. Slight play can usually be taken out of the bearings simply by filing the bearing caps a sufficient amount. Often it will be found necessary to replace the old caps with new ones. A take-up roll which is loose on its shaft should be brazed to the shaft.

When the rocker shaft and rocker-shaft bearings become loose through wear, the shaft and the entire lay will jump when the loom is running. This is quite likely to cause barré effects, since on most looms the entire take-up motion is hooked up to the rocker shaft. And even a small amount of jumping will influence the reed at the beat-up. In some cases the only correction necessary is simply to loosen all connections and drive the shaft about 1 in. to one side or the other, thus assuring a perfect shaft in the bearing. Turning the shaft and fitting shims over the worn part is also satisfactory, as the shaft does not revolve and there is no danger of the shims working themselves out of position. In extreme cases, replacing the shaft and bearings with new ones is advisable.

Timing of Harness

If the timing of the harness has slipped so that the shafts level off when the lay is at some point past front center, barré is sure to result on certain constructions. Excessive play in the top- and bottom-cylinder shafts or too much lost motion on the head driving gears are also contributing factors.

Whirolls sometimes become warped so that they do not travel in a fixed circle. It is easy to see what effect this will have on the cloth. Whiproll bearings should be kept in good repair; in fact, installation of roller bearings will prove a good investment.

Warp-beam bearings are important. In many instances pipes are used when it is necessary to accommodate beams of different widths. A good practice is to use pipes with just enough clearance over the beam gudgeon to allow it to revolve freely. Of course, an oil hole is necessary for lubrication. Care must be exercised to make certain pipes are in perfect alignment; otherwise a binding action will take place and cause the beam to let off irregularly.

Take-Up Roll Covering

The take-up roll should have a covering that will not allow the cloth to slip. The type of covering used is dependent on the nature of the fabric being woven. If a smooth cork or composition covering is used, it will be well occasionally to check the roll for slippage. A good method of checking is to draw a pencil mark across the selvage and on to the take-up roll as the cloth goes on to the roll. If the line is broken by the time it reaches the pressure roll, slippage is indicated and steps should be taken to correct the condition. Coverings of the above type can usually be kept in good running condition by roughing them with sandpaper, but sometimes the covering on the pressure roll becomes so compressed that its diameter is decreased to such an extent it will no longer hold the cloth or the take-up roll. This condition should be remedied.

The center support of the guide roll should not be overlooked. Such rolls are fitted with removable wooden blocks, the purpose of which is to keep the roll from jumping with the beat of the cloth. If the wood inserts have become worn enough to allow the roll to jump, it is usually reflected in the cloth.

In Boarding Hosiery

Operators must exert both care and skill in order to produce saleable goods

By MILTON M. ABRAMS

KNITTERS of hosiery have always been painstaking in their selection of silk; they have made certain that their knitting machines were in first-class condition; but, for some unknown reason, they have taken for granted the boarding operation. Yet a stocking which has been knit properly from the best silk can be ruined in the boarding department. Actually, boarding is of prime importance, and as much care and skill are required in the boarding department as in any other department of the mill.

The two principal methods of boarding hosiery are by external heat application, and by internal heat application. The original method of external heat application was the wooden board method, and this is still considered by many mill men to be the best method for obtaining perfect boarding results. Today, however, wooden boarding is practically obsolete, being used only in a few instances. Some plants still employ wooden boards for getting a better length from short-length hosiery which has been boarded by other methods. Again, some mills use wooden boards for boarding samples. Although wooden-boarding has been largely replaced by newer methods, the way in which the hosiery is handled has not changed. Since wooden boarding is the basis of all other methods, the procedure followed with wooden boards will be described in some detail.

The Boarding Table

The boarding table is very heavy and is securely made. Underneath the table, racks are usually built to store the boards when they are not being used. Two men work at a boarding table from diagonally opposite ends. At each man's station a special block or clamp is fastened to the table. When the operator places his weight against this clamp, it holds the wooden board in an upright position while the stocking is being pulled onto the board. The operator works on two sets of twelve boards each at a time, one set being in the drying box while the other set is being worked on at the boarding table. The drawer of the drying box in which the hosiery boards are placed is divided into grooves, each groove holding a board.

The first step is to place one of the wooden boards in the clamp—the welt part of the board remaining in the clamp, and the leg part of the board standing upright. If the operator is right-handed, the curving of the welt and the calf should be at the right, and vice versa.

The procedure used by a right-handed boarder is as follows: He pulls the stocking on the board, using both hands, and sets the toe. The heel is then pulled over and set, and the rest of the stocking is then pulled down on the board. In the final pulling-down operation, to get proper length, the left hand is at the back of the welt, and the right hand at the front. Each board should be properly marked for desired length. If the stocking falls short of the length marking, the boarder will have to "pull the stocking" in order to get length out of it. Care must be taken while doing this to use the hands in such a manner as to not leave finger or knuckle marks on the stocking. The seam is then set and after that the welt is squared. In setting the toe, the operator must make certain that the toe reinforcement or toe-block is evened up for both sides of the stocking, so as to give it a balanced appearance. The foot of the stocking should be pulled sufficiently far across the board so that the heel will have a natural shape, and will not be pulled out of proportion or distorted. In blocking of the heel, the top part of the heel should be boarded, so that it has a square top at right angles to the seam (unless, of course, fancy heels are being boarded). In setting the seam, the boarder should make sure that the seam follows the edge of the board all the way down the stocking, and is not given a wrinkled or kinky appearance.

Positioning the Seams

The seams of all stockings boarded are usually set on the same side of the board, either on the up side of the board, or the down side of the board. However, in some mills, when very fine stockings or samples are boarded, the seam on one stocking is boarded up, and the seam on the other stocking of the pair is boarded down. As a result, when the two stockings are paired together, both seams are on the inside of the pair. Care should be taken that the welt is so manipulated that it will be flat, with the picot edge smooth and straight. If the welt is mishandled, the picot may turn in, and this will make an unsalable product. After the twelve boards have been covered with stockings, they are placed in the dry box.

The Dry Box

The dry box is fitted with steam coils and a fan which keeps the warm air in circulation in the box. When the wet set is placed in the box, the other set which has been drying is removed. While the operator has been working on the wet set, sufficient time has elapsed to dry the set in the box. The dry set is returned to the boarding table and stripped. The heel of the stocking is grasped in the left hand, and the right hand pulls the board out by using a pull and arc motion. The stockings are then placed in piles of twelve, and the boarding operation is repeated with a new set.

A newer method of external heat application is the automatic machine method. The automatic boarding machine gives a higher production than do wooden boards and is an important factor in reducing mill costs. The automatic machine was developed on the principle of the wooden board. However, the forms are made of aluminum, and the toes are interchangeable, so that any size can be boarded on the machine. The double boarding machine, requiring two operators, is equipped with 30 forms. One operator, the helper, pulls the stocking on the form, and sets the foot. The other operator, the boarder, sets the seam, adjusts the welt, and pulls the stocking for the proper length. The aluminum forms are attached to the machine on an endless chain principle, and are kept constantly in motion moving towards the dry box, in and through the dry box, and out of the dry box. Therefore, the operator must be alert and efficient, as his time for manipulating the stocking on the form is limited.

The dry box is operated on the same principle as the wooden boarding machine, except that there are no racks for the boards, as the boards

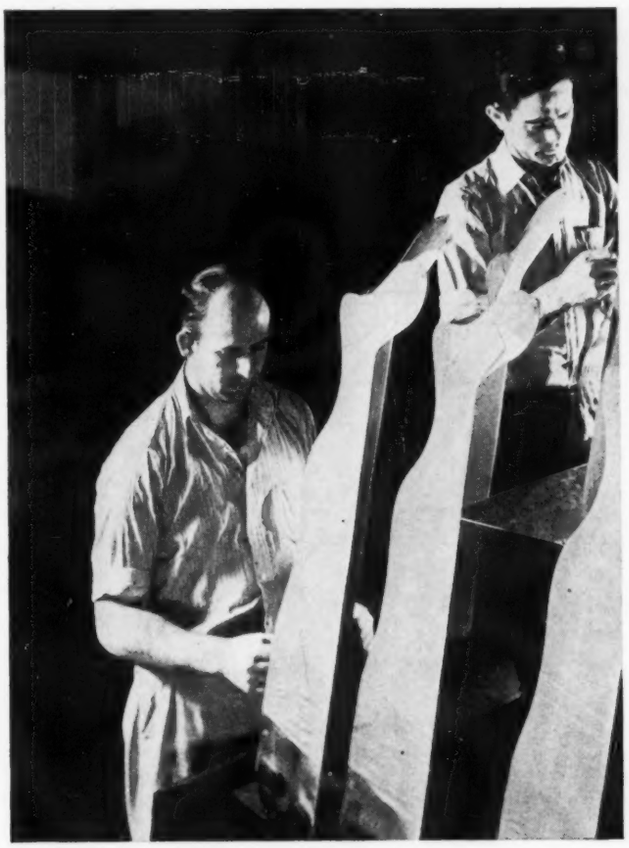
pass through the heated chamber mechanically. After the stocking emerges from the drying chamber, the aluminum form automatically drops from a vertical to a horizontal position as it approaches the stripping fingers. These stripping fingers grasp the heels and toe of the stocking, and hold it firmly while the form is automatically pulled away and out of the stocking, dropping it onto a table. After twelve stockings have been stripped from the form, the table automatically moves over, leaving enough room under the stripping fingers for the next pile of twelve stockings. The table will hold five piles of stockings before it becomes necessary to remove the piles. Newer models of the machine are equipped with a conditioning unit which subjects goods entering the dryer to the action of steam to prevent drying marks and crease marks and to allow in-grain hosiery to be boarded without a pre-moistening treatment.

Internal Heat

For boarding by internal heat application, the steam form method is most commonly employed. In this method, a number of forms (usually 24) are connected to a long table. These forms are hollow, and steam is circulated through the forms. The stocking is pulled on this form, and set in the usual manner. By the time the last stocking has been pulled on, the first ones are dry, and can be stripped. Hot water and electric forms are operated on the same principle. Some of the newer forms are designed to give any one of three heats or to give different temperatures at various points. Also attachments are available for changing the contour of the form, so that various sizes and shapes of hosiery can be dried on one form. A recent innovation in hosiery boarding equipment is a circular rotating table having in an upright position around its edge twelve or eighteen steam or electrically heated forms.

A semi-automatic machine which is becoming increasingly popular, particularly for fine-gage and fine-thread hosiery, consists essentially of twelve steam-heated or electrically heated forms mounted with their drying surfaces parallel and closely adjacent. In their drying position the forms are maintained in a vertical plane. An electric drive actuates the forms into and away from the boarding-stripping position. When all forms are covered with stockings and are in the drying position, the operator by touching a foot control causes two forms to move down simultaneously for stripping. With a single stripping operation the operator removes both stockings; and with another touch of the control causes one of the two bare forms to return to the drying position while she pulls a stocking on the form remaining down. This charged form, upon returning to the drying position, automatically brings down the remaining form of the two previously stripped. The return of this latter form properly charged with a stocking simultaneously brings two more covered forms into position for stripping, whereupon the cycle is repeated. The forms are designed to give a proportioning of two temperatures at the drying surface so that the sheerer portions of the stocking are dried at a suitable low temperature, and the reinforced or heavier portions at a suitable higher temperature.

Care must be taken throughout the entire boarding department to prevent damage to the hosiery from snagging due to rough equipment. The boarders must also be careful of rough hands and sharp fingernails. Another important consideration in the boarding department is the way the work is delivered from the dyehouse. An experienced boarding foreman knows how weather conditions effect a stocking. Damp weather, dry weather, cold weather, and hot weather all have their effect on the stocking — and experience alone teaches how to prepare for these varying conditions. Under ordinary conditions, it is best to have the work come in from the dyehouse reasonably damp, so that it can be boarded without having to be wet out. When it is necessary to wet out the batch before boarding, there is always the possibility of losing some of the original dye liquor, and thereby affecting the finish.



The boarding operation is of prime importance in production of hosiery

Keeping Work Moist

Occasionally, work will pile up ahead of the boarding department, and then, of course, it is impossible to prevent its drying out. When this occurs, and the work must be wet out, pains should be taken to see to it that the work is not made too wet, as then difficulty will be encountered in drying the hosiery while boarding. For this purpose, an extractor should be used, which will enable the boarding foreman to keep his work at the proper moisture content. It is also advisable when work is sorted out preparatory to distribution among the boarders, to place damp cloths over it so that the moisture will remain in the stockings until they are ready to be processed. This will insure an even and clear appearance for the finished stocking.

It is the duty of the boarding department to watch out for dye spots, faulty application of finishing materials, etc., as well as manufacturing defects which are apparent to the naked eye. If these are called to the attention of the proper authorities, money will be saved before the stocking passes on to another operation.

As stated previously, the importance of boarding should not be under-estimated, and as much skill and care are needed in the boarding department as in other departments.

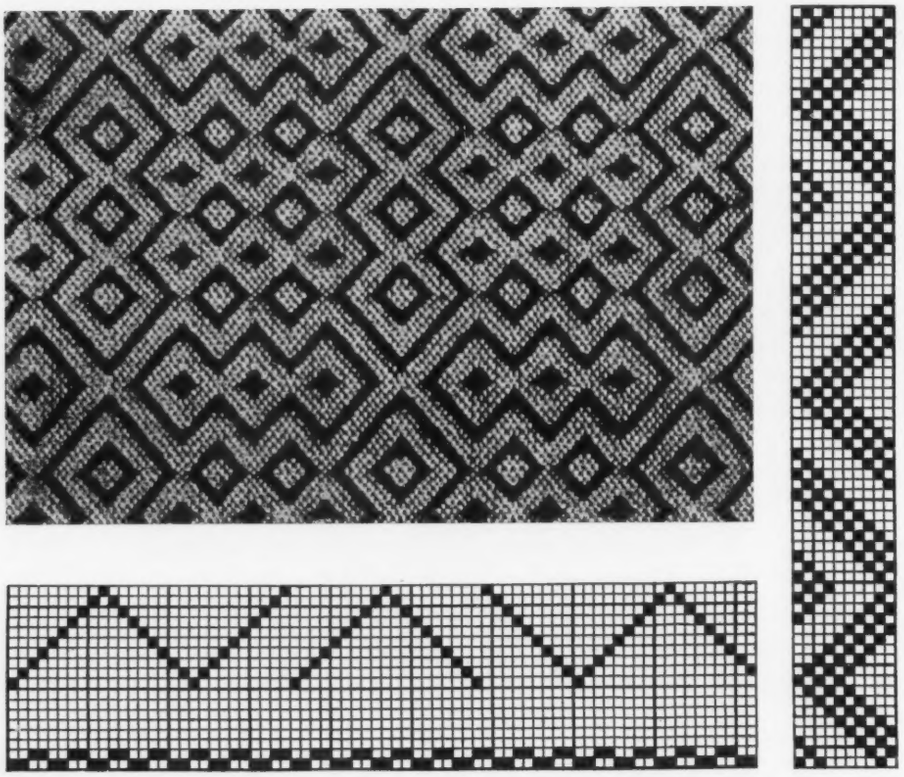


Fig. 18. Fabric and its drawing-in draft and chain plan developed by combining a diamond draft with a base weave

Diamond Drafts

With base twills afford wide range of all-over patterns on few harnesses

By T. R. HART

Professor of Weaving and Designing
Textile School, North Carolina State College

DIAMOND drafts used in connection with base twills, it is believed, offer worth-while possibilities to the alert designer who is in search of something new. A great variety of large all-over patterns can be produced on a comparatively small number of harnesses.

To make these patterns, first decide upon the base twill to be used (Fig. 1) and then make a diamond drawing-in draft (Fig. 2). From these, make the chain plan (Fig. 3). The first eight ends are drawn in straight on harnesses Nos. 1 to 8, so that the first eight picks in the chain plan will be one repeat of the base weave. These eight picks are indicated by the solid vertical line at the right of the chain plan. Since the drawing-in draft is reversed for six ends, picks 9 to 14 inclusive in the chain plan will be made to correspond to picks 7, 6, 5, 4, 3, 2 in the base weave. These six picks are indicated by the vertical line of cross-marks at the right of the chain plan. Next, the drawing-in draft indicates two repeats of the eight-harness straight draw; therefore two repeats of the base weave are inserted in the chain plan. These are made up of picks 15 to 30 inclusive, as indicated by the solid vertical line at the right. Since the drawing-in draft is reversed again, the next fourteen picks in the chain plan are reversed correspondingly and are represented by a vertical line of cross-marks. This procedure is continued until the chain plan contains as many picks as there are ends in the drawing-in draft.

After the drawing-in draft and chain plan are completed, it is a simple matter to produce the design from them. The design (Fig. 4) was derived from the drawing-in draft (Fig. 2) and the chain plan (Fig. 3).

Apparently better patterns are obtained by starting off with the plain part of the twill rather than with the warp float. It has been found that better results are obtained by starting the twill $\frac{112}{111}$ instead of the usual way

In an article which appeared in the October, 1934, issue of TEXTILE WORLD, Professor Hart discussed three different methods which could be used to add variety to diamond-draft patterns. Recently he has developed a method of combining various basic weaves with various diamond drafts to produce a wide range of patterns. This method, which it is believed is original, closely resembles Dr. Thomas Nelson's method of producing jacquard patterns on dobby looms, described in the July 25, 1931, issue of TEXTILE WORLD. However, the results obtained are radically different.

of $\frac{311}{111}$. While there may not be any basis for this belief, more clear-cut figures have been obtained by adhering to it.

From the same drawing-in draft as that shown in Fig. 2 and the same base weave as that shown in Fig. 1, a considerably different chain plan can be derived (Fig. 7). This is done merely by stepping the base weave up two picks, as shown in Fig. 5. The design thus obtained is shown in Fig. 8.

Several modifications can be made in the design shown in Fig. 8. By eliminating the first eight and the last six picks, and using the same drawing-in draft as Fig. 2, the pattern would be materially changed. The chain plan for such a pattern is shown in Fig. 9. It could be further changed by eliminating the first eight and the last six ends in the drawing-in draft, as illustrated in Fig. 10 and using either Fig. 7, 9, or 11 as the chain plan.

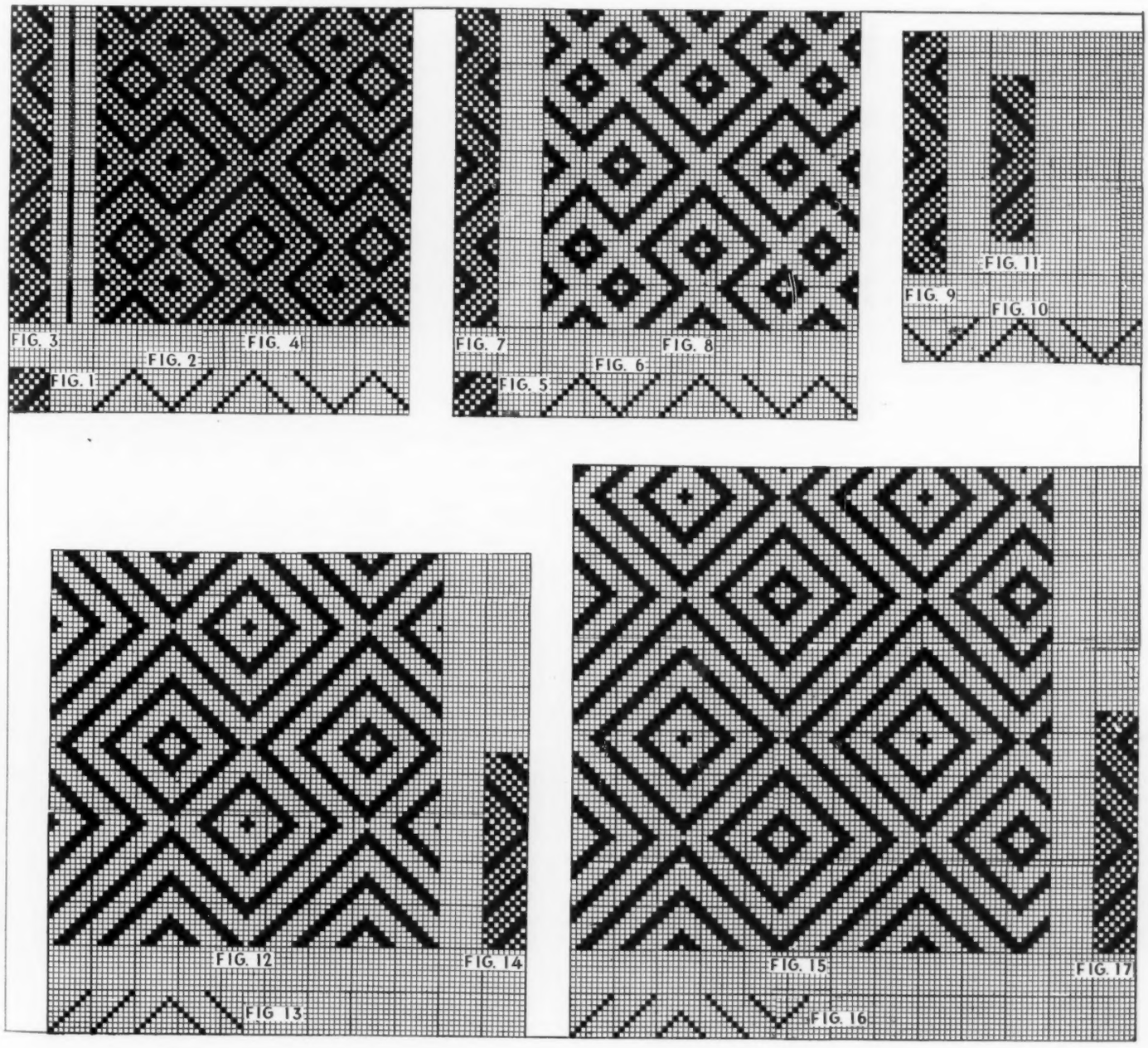
Thus far all the drawing-in drafts illustrated have been symmetrical. However, non-symmetrical drafts, or, in fact, any kind of draft can be used, regardless of the number of reversals, so long as there are no breaks in it. Fig. 12 shows two repeats warp-way and filling-way of a design made from the draft shown in Fig. 13 and the base weave shown in Fig. 1. Fig. 14 is the chain plan.

Two repeats warp-way and filling-way of another design made from a non-symmetrical drawing-in draft are shown in Fig. 15. The same base weave was used in constructing it. Fig. 16 is the drawing-in draft, and Fig. 17 is the chain plan for this design.

The ground weave in Figs. 8, 12, and 15 has not been filled in, since it is a plain weave, as shown by the chain plans and the ground of Fig. 4.

Fabric woven with a design developed by combining a diamond drawing-in draft with a base weave is illustrated in Fig. 18 along with its drawing-in draft and chain plan.

It has been shown that even a slight change in the base weave will result in production of a different pattern. From the variety of illustrations shown, it can be easily seen that countless drawing-in drafts can be made and used in developing designs of this class. These facts, coupled with the knowledge that there are numerous twill weaves that can be used as the base weave, indicate that some experimenting with this type of designs would be profitable.



Finishing Cynaras

Pretreatment of the fabric to avoid breaks is important part of procedure

BY PHILIP LE BRUN

CYNARAS were developed as a result of the demand for less expensive fabrics. This cloth is sheerer than a true alpaca because of the lesser number of ends and picks. Like the latter, it consists of viscose and acetate twisted into a two-ply yarn for both warp and filling. Two types of finish are in vogue. One is a lustrous, flat, almost sheer cloth. The other is less lustrous and more crepy, and has a fuller handle, almost like a true alpaca.

Cynaras, like all the alpaca family of fabrics, are susceptible to breaks. Due to numerous complaints from various dyers, weavers are generally shipping the gray fabric rolled on tubes. This aids the dyer by giving him a less wrinkled piece of goods at the start.

The reason that this cloth develops so many breaks is not definitely known. However, most dyers blame it on the use of excessive size before weaving to facilitate the latter process. Based on this line of reasoning, a number of pretreatments have been devised. Some of these have yielded remarkably uniform results as regards the absence of breaks. One method of treatment before boiling-off consists of running the beamed-up cloth through a quetsch which is equipped with a rotating expanding device to remove wrinkles before the goods pass through the nip. Various solutions are in use in different dyehouses. Use of a 2% solution of sulphonated castor or olive oil will soften the cloth sufficiently to prevent breaks.

For Shorter Boil-Off

Another material which some dyers believe is even better in many respects than an oil solution is an emulsion of Bentonite containing a small amount of ammonia. The latter is made up by pasting 25 lb. of Bentonite with a small amount of water and then diluting slowly to 50 gals. A few ounces of ammonia is added to the emulsion before use. Proponents of the latter method assert that a shorter boil-off is possible and also that a softer piece of finished goods will result.

The cheapest material being used is a very weak soda ash solution. About ½ lb. of soda ash to 50 gal. of water is sufficiently strong.

The cloth is generally dried and framed before it is reeled for boiling-off. It is difficult to reel wet goods, because the cloth wrinkles too easily while wet. Wet goods are also a constant source of complaint from the girls who reel the goods for boiling-off. It is possible to produce satisfactory finished material merely by framing the cloth before boiling-off. However, the results are not so consistent as those produced by any of the preceding methods.

Embossing and Scouring

When more crepe is desired in the finished material, it is customary to emboss the fabric before scouring. A fine stippled engraved roller (No. 2) is most commonly used. As in any embossing operation, the cloth must be free from wrinkles before going through the nip of the embossing calender.

The actual scour presents no difficulties from a chemical standpoint. There is one major mechanical difficulty. Unless the cloth is turned constantly for the first 15 min. after entering the soap, "oxidation" bars will be present in the dyed fabric. Oxidation bars are darker or lighter bars usually 2 to 6 in. wide which repeat about every 10 ft. They are caused by allowing the fabric to remain in one position too long after entering the soap. The only cure for this defect is to reboil the cloth as soon as the bars are noticed. Oxidation bars actually are the result of the fibres having a different affinity for dyes, because of the variation in the boil-off treatment. Use of bent iron rods helps to overcome this possibility by completely submerging the cloth in the soap. However, bent sticks are more difficult to handle, in addition to the fact that bars are still possible, due to the different temperature of the part of the cloth that is in actual contact with the rod.

The continuous boil-off is being used successfully in a few mills. The pretreatment in such cases is carried out in one of two ways: either the cloth is oiled up, dried, and framed; or else the cloth is passed through a quetsch set up in tandem with the continuous full-width unit. The quetsch speed must be synchronized so that no wrinkles are formed between the latter and the full-width unit. At the same time, the quetsch must not run so slowly that the full-width unit will stretch the cloth or that the natural shrinkage will be hindered. Stretching while wet will result in a very thin, open, finished fabric.

Dyeing and Drying

Dyeing of alpaca juniors is no different from that of any other viscose-acetate fabric. The only precaution needed is to be sure that both fibers match in shade. Otherwise a peculiar, speckled appearance results. After dyeing, the cloth must not be cooled too suddenly, as this will result in cracks and breaks. The safest method is to run cold water into the dye liquor and allow the bath to overflow until the cloth is cool. This means of cooling down the liquor causes the cloth to cool off gradually so that the wrinkles which are necessarily present in any rope dyed fabric do not set. In a gradual cooling operation the wrinkles are constantly forming and reforming so that no particular wrinkles are set into the cloth, as is the case when a hot liquor is suddenly let down into the sewer and is followed immediately by a cold-water rinse.

The finishing process follows the usual routine of drying, framing, softening on a quetsch, drying, and framing. Most cynaras are decatized as a final operation. This tends to remove any traces of wrinkles from the previous operations. It also forms a uniform surface, so that the cloth is either flat and lustrous or, if it has been previously embossed, it is slightly crepy and less lustrous.

Junior alpacas should have a soft finish. This can be accomplished by the use of large amounts of oil in the quetsch or by the use of a softener in the final rinse after dyeing. The former means of softening is not always the safest. Certain oils tend to stiffen or oxidize on aging, especially when large amounts have been used to obtain maximum softness. Most oils also tend to work to the surface and leave stains on the buff and white used for wrapping finished goods. Use of similar oils or special softeners in the final dyebath produces better results. Such processing is also cheaper, since the cloth need only be dried, framed, and decatized after dyeing, instead of going through the previously mentioned routine.

Card Grinding Hints

Practical advice on the setting of stripper rolls and the causes of felted flats

By A. K. LANDAU
Saco-Lowell Shops, Boston

GOOD GRINDING is a requisite of good carding. Today many of the more progressive mills have established classes in card grinding. The following hints will aid the experienced grinder in avoiding mistakes and will be useful to the mill in training men to become card grinders. Subjects of particular importance relating to card grinding are: (1) wear and care of feed-roll bearings, (2) setting of lap guides, (3) abuse of the lickerin, (4) setting the feed plate, (5) use of emery, (6) condition of the traverse grinder, (7) care and oiling of grinders, (8) setting flats, (9) faulty stripper settings, and (10) causes of felted flats. The first eight of these subjects were discussed in the December issue; the last two are discussed in this article.

9. Stripper Rolls. Many good sets of card clothing have been ruined by carelessness in setting the stripper rolls. This is a routine operation which every card grinder should know to perfection in order to avoid expensive damage to the card clothing. Sometimes, on account of hooked or rusty wire, there is a tendency for waste to accumulate in the wire. In attempting to remove this imbedded waste, grinders have been known to set the wire of the stripper rather deeply. The only result of this procedure, aside from the temporary riddance of the impacted dirt and trash, is to pluck out the card clothing teeth, disturb the angle of the wire, and ruin the surface of the teeth. These adverse results always follow when the wire of the stripper reaches beyond the bend of the card wire. The additional strain at the root of the tooth, both on the card clothing and the stripper fillet, will in time loosen the wire by enlarging the holes in the foundation. The correct depth for ordinary stripping rolls is just a bare $\frac{1}{8}$ in. With the stripper set at this depth, and the wire free from defects, the teeth of the stripper should have no difficulty in picking up and holding the impurities imbedded in the clothing.

Another common stripper defect, which causes untold damage to the clothing, is that due to the stripper's being eccentric. The only remedy for this dangerous condition is a new roll, or a trip by the old one to its maker.

10. Felted Flats. Felted flats have always been a source of trouble. One of the common causes of felting is the improper setting of the flat comb. If the comb ever touches the wire on the flats, it will crush the teeth and cause them to hold the cotton. This danger is generally more pronounced at the heel of the flat, and is frequently seen in a definite line along the surface of the flats where the teeth have a decided tendency to lean forward. These deformed teeth will be loose in the foundation and totally lacking in any tendency to assume their normal position. The proper way to set the comb is to put it in its lowest position, with the teeth lined up opposite the toe of the flat (See Fig. 1). Use a 0.022 in. gage. The careful grinder tests out his adjustment on at least five to ten flats before leaving the card.

Another cause of felted flats is use of the burnisher roll, with its straight wire, to knock out the imbedded seeds and fibers. If this wire is set deeply enough to remove the impacted mass, there is the increased danger of ruining the foundation by a napping action. Foundation in this condition has the same surface as a piece of worn-out clearer cloth and becomes active as an agent in picking up and holding dust, leaf trash, and seed.

Many carders and grinders have tried to overcome felting by setting the spiral brush unusually deep. However, this action only aggravates the felting trouble, because the deeply penetrating bristles pack the imbedded fibers closer and deeper. The correct setting between the spiral brush and flats is illustrated in Fig. 2. Proper adjustment of the hackle comb to the spiral brush is $\frac{1}{2}$ in. (See Fig. 3). Clearance between the Thompson roll bracket and the flat-brush holder is $\frac{5}{8}$ in. (See Fig. 4).

The processing of low grades of cotton, with large quantities of seed, leaf trash, and hulls will increase the tendency toward felting, especially if the clothing is not suitable. For this cotton, the flats should be clothed with nothing finer than No. 90 or No. 100 wire.

Sometimes, cards installed under large counterbelts near constantly moving air currents of large volume, or close to a window adjacent to the exhaust of an engine or dyehouse can hardly be stopped from felting. Condensation from pipe lines or from humidifiers is also a frequent cause of felted flats.

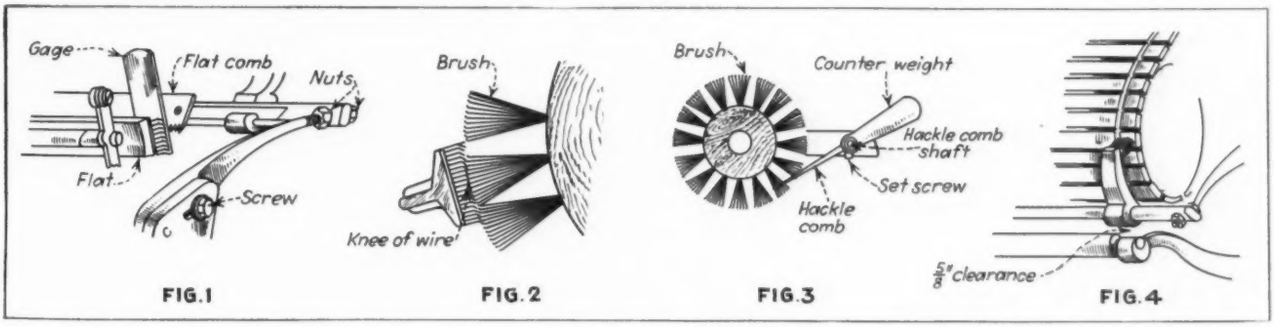


Fig. 1. Adjustment between comb and flats is made with nuts, and adjusting for position is done with screw. Fig. 2. Detail view of spiral brush shows setting of brush to flats; set bristles no deeper than knee of wire. Fig. 3. End view of spiral brush and hackle comb. Adjust depth of comb teeth into brush no deeper than indicated; use setscrew. Fig. 4. Distance between Thompson roll bracket and brush holder should be $\frac{5}{8}$ in., as explained above.

Savings by Welding

Demonstrated in fabrication of stainless-clad steel acid tank

By W. E. SHEFELTON
R. D. Cole Mfg. Co.

Most mill men are aware of the many advantages of corrosion-resisting equipment for use in the rayon industry and in processing of all types of textiles. Accordingly, they will welcome anything which can be done to reduce the initial cost of such equipment. The following article indicates how welding permits the fabrication of certain types of corrosion-resisting tanks at a saving in cost for materials of 43% compared with the nearest satisfactory competing product. The author of the original paper from which this article was abstracted received fourth award, $203.51, in the industrial machinery classification, textile and clothing division, of the $200,000 Award Program sponsored by the James F. Lincoln Arc Welding Foundation, Cleveland, Ohio, in which authors indicated that aggregate savings to industry of $1,600,000,000 are available by wider application of arc welding.

WHEN the rayon and textile industries are operating regularly, they buy annually many million dollars worth of dyeing equipment, size kettles, jig boxes, tanks, dry cans, etc. Much of this equipment could be materially reduced in cost without impairing its service, and much more now constructed of ordinary materials could be much improved as to length of life and more serviceable operation, without materially increasing the cost. To one acquainted with the bleaching, dyeing, and other departments in which such equipment could be used, there is no doubt as to the benefits to the workmen, due to cleaner and dryer working conditions and elimination of fumes. Again, many textile mills are finding it necessary to install non-corrosive equipment for sizing, dyeing, and drying, so as to produce cloth and colors superior to those produced by old methods and equipment. The cost of material for the acid tank for the rayon industry described in this paper was nearly 43% cheaper than for the nearest satisfactory competing product.

This is a jacketed tank of stainless clad steel (20% 18–8 SMo quality cladding). Until recently such equipment was made of wood, or of wood lined with thin-gage copper, Monel metal, or stainless steel. Some few in recent years have been made of solid non-corrosive metals of different kinds. In this particular case the metal has to withstand acid solutions and sulphur solutions at the same time; 18–8 Mo steel stands up under this condition the best of any metal known to the writer. Several of these tanks have been in service since April, 1937, and so far they have operated very satisfactorily. The material in the tank is subject to violent agitation and, for that reason, the tank is somewhat heavier than the pressure and contained liquid would necessitate.

The cost of joining the metal by welding is a very small per cent of the total manufacturing cost; but if it were not for welding, use of ply material—such as stainless clad and nickel clad—would be impracticable if not impossible. The saving in cost of clad material against the cost of solid stainless is one of the large items of saving.

If it were not for welding, the bottom would have to be flanged and riveted, the sight glass frames would have to be of solid non-corrosive metal, the attaching of the jacket would be much more expensive, staying the inside shell to the outside by means of staybolts would be much slower and more expensive, the various size nozzles would be larger and more expensive. Up to the development of welding, such equipment would have had to be built by riveting, which would have at least doubled the shop expense and added 20% at least to the cost of material. Further, the riveted vessel would not be so strong or so rigid as the welded vessel.

The cost of a wooden vessel is somewhat less, but its useful life is much shorter and its operation is never satisfactory. Wood lined with non-corrosive materials is somewhat less expensive in first cost than the clad material, but its performance in service is not satisfactory.

At first glance it might appear that a solid non-corrosive metal would be more satisfactory than the clad material; but under certain conditions it is not so satisfactory, due to electrolysis between the different kinds of metal in the jacket and the inside shell.

Where spilling of the contained liquid or the action of fumes in the room acts unfavorably on the ordinary steel jacket outside the vessel, this has been overcome by the use of rubber paint, several varieties of which are now on the market, at a price comparable to good lead paints and with the same coverage.

Throwing Combination Yarns

Soaking and tinting have important bearing on ultimate success

By JOHN N. BACCASH

IN THE first installment of this series (TEXTILE WORLD, December, 1938) the writer discussed generally the most popular combination yarns, difficulties which attended early production of combination-yarn fabrics, and the effect which development of larger packages for throwing equipment has had on both speed and quality of combination-yarn production. This article deals specifically with processes which precede the actual twisting—soaking and tinting.

There often arises a question as to whether viscose yarns intended for throwing and subsequent combining with acetate yarns should be soaked the same as similar yarns which are to be used alone as crepe filling. The answer is, "Yes, with modification."

The gelatines or sizes used in soaking serve to give a protective coating, to add strength, and to offset possible abrasive influences to which the yarn might be subjected. Lubricating oils applied during soaking have a different task; namely, to render the yarn soft and pliable, to reduce susceptibility of the yarn to undue changes in atmospheric conditions and static electricity and, by so doing, to assist in effective twisting of the yarn. Penetrants are used to increase the speed and uniformity with which the yarns absorb the soaking ingredients and tints—their chief application is on delustered types, which, due to their pigmented structure, resist absorption of such ingredients.

The extent of pebble in fabrics made from high-twist yarns is determined by the formula of the soaking solution. By adding lubricant above and reducing gelatine below the proportions of the basic formula, it is possible to increase the amount of pebble. Likewise, by adopting the opposite procedure, one can reduce the prominence of the pebble. Therefore, it is necessary to have in mind the nature of the fabric to be produced when deciding upon quantitative proportions of the ingredients to be used. In soaking viscose for combination yarns, a formula that will yield a medium crepe pebble has been found the safest and most practicable, and allows sufficient latitude for most of today's combination-yarn fabrics.

Tub versus Machine Soaking

Tub soaking cannot compare with modern machine soaking in production, thoroughness of penetration, level tinting, safety in handling, and economical cost per thousand pounds of yarn. Nevertheless, the tub soaking procedure has many adherents, especially in the smaller rayon weaving mills which have their own throwing departments.

The machine soaking method takes but a fraction of the time used in tub soaking, and for the mill soaking more than a thousand pounds daily is undoubtedly just the thing. However, many mills which do not consider their requirements large enough to warrant machine soaking, are using the tub method. For best results, wooden tubs should be lined with stainless steel, Monel metal, etc.

After the soaking solution has been properly prepared, addition of tints is next in order. An effort should be made to maintain the bath temperature at 130° F. Colors decided upon should contrast as sharply as possible, as it must be remembered that later, when the viscose crepe end is combined with an end of acetate that is barely, if at all, tinted, the tendency of the acetate yarn is to diminish the brilliance of the color. Since this brilliance-diminishing tendency leads inevitably toward mixing of S and Z twists due to inability to distinguish between tints other than by testing for twist, mills doing throwing should give this phase very close attention.

If the tub method is in use, after soaking the viscose yarns for a period of 20 to 30 min., drain the bundles of excess liquor and then extract them from 1½ to 3 min., until they weigh twice their original dry weight.

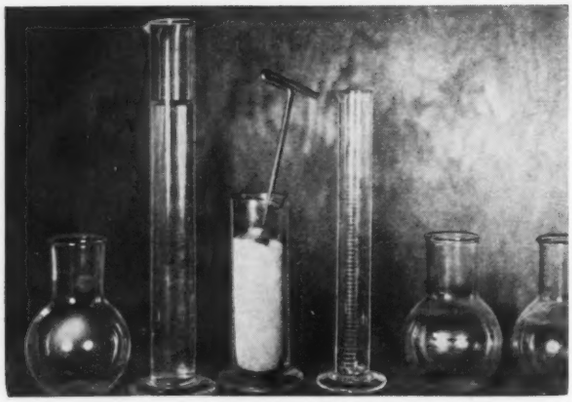
Mechanical shakers are preferable to hand shakers for shaking and straightening out skeins after extraction. They save time and labor and place no strain upon damp skeins. Frequent inspection of shakers is advisable, to detect and smooth any abrasions.

All manipulation of the yarns while in a wet state should be carefully carried out; bruising and straining should be guarded against while shaking the skeins preparatory to placing them in the dryer. Under no circumstances should hurry for yarns dictate a rise in drying temperature in order to reduce the time required. This may bake the yarn and impart a brittleness which will materially affect the yarn's quality. Unless the mill is equipped with a dryer which incorporates a conditioning section, conditioning after drying should be carried out in a fan-equipped conditioning chamber which is maintained at a temperature of 65° to 75° F. After 8 to 10 hr. the viscose yarn becomes conditioned to about 11% moisture and is ready for further processing.

Colors that Can and Cannot be used safely for identifying S and Z twists which are to be used together

YELLOW								
BLUE	Yes							
RED	Yes	Yes						
GREEN	No	No	Yes					
ORANGE	No	Yes	No	Yes				
PURPLE	Yes	No	No	Yes	Yes			
BROWN	No	Yes	No	Yes	No	No		
GRAY	Yes	No	Yes	No	Yes	Yes	Yes	
	YELLOW	BLUE	RED	GREEN	ORANGE	PURPLE	BROWN	GRAY

(Note: This chart appeared originally in an article by W.F. Parry, in the January, 1938 issue of TEXTILE WORLD)



Surface-Active Chemicals

Data on specific textile applications (concluded)

By GEORGE A. THOMAS

THE FIRST two articles of this series, which started in the July, 1938, issue, discussed the wetting-out and detergent properties of surface-active chemicals and described tests which have been developed for evaluating these products. Subsequent installments took up the use of surface-active chemicals in various textile processes. This concluding article deals with other specific applications in which wetting agents, detergents, etc., are used.

Methods have been described for testing the wetting-out and detergent value of various types of surface-active chemicals under various conditions. And sufficient examples have been given to show how results of such tests, plus a knowledge of the results desired from a specific process and the conditions under which the process is carried out, make it possible for one to determine which particular surface-active chemical is likely to prove most efficient and economical to use in that process.

In addition to the specific applications which have already been considered, there are some twenty or more other processes in which surface-active chemicals play an important part. In most of these remaining operations, however, the surface-active chemical is used as an assistant, rather than as the chief constituent of the processing solution. In the following discussion these applications will be grouped according to the fibers treated.

Cotton Processes

1. *Printing Gray Goods from the Bale*—Use of a surface-active chemical is for the purpose of increasing wetting-out properties of the printing paste so that it will quickly wet out the gray fabric, which, due to presence of waxes and other impurities, is resistant to wetting out. Nothing is removed from the fabric; hence the chemical need not have detergent properties. It must not change the consistency of the paste or affect the shade of the dyes. It should increase the solubility or degree of dispersion of the dyes. It should be as readily removed in the washing of the goods after steaming or ageing as are the printing gums, etc. It should not create a foam on the paste.

2. *Peroxide or Perborate Bleaching*—The chief purpose in using a surface-active chemical is to retard the liberation of oxygen. If the oxygen is evolved at more rapid a rate than the fabric can take it up, there will be a waste of bleaching agent. Frequently the surface-active chemical is incorporated with soluble or sulphonated oils which are added to the bath. Good wetting-out and detergent properties under the conditions of use are desirable. In addition, tests should be made to determine the degree to which the chemical retards the liberation of oxygen.

3. *Preparation and Application of Starch Finishes*—One purpose in adding a surface-active chemical to starch or dextrin finishing solutions is to increase the wetting-out speed. In addition, some of the agents with high wetting-out speeds have the property of dispersing starch and dextrin particles in a cold solution, so that the cooking time is reduced. Others not only have this property, but also have the property of making the cooked solutions more fluid; this is particularly advantageous when it is desirable to use high concentrations of starch or dextrin. Certain of the surface-active chemicals are more economical to use than are enzymes and permit better control of the fluidity of the solution; on the other hand, those investigated by the writer do not result in so complete a liquefying effect as do the enzymes. The surface-active chemical need not have detergent properties. It should not cause excessive foam. The foam test should be made on the cooked starch or dextrin solution, as the tendency of some surface-active chemicals to foam excessively in aqueous solutions is counteracted by the starch or dextrin.

4. *Aftertreatment of Dyed Goods with Bichromate or Perborate*—Use of a surface-active chemical in conjunction with bichromate or perborate employed in aftertreating goods which have been dyed with vat or sulphur colors, etc., is primarily for the purpose of preventing over-oxidation of the color. In general, the same types of chemicals used to retard the liberation of oxygen in peroxide and perborate bleaching are satisfactory for this purpose. In addition, certain of the surface-active chemicals act as softeners, offsetting the objectionable, harsh hand imparted by the oxidizing agent.

5. *Dissolving Dyes and Dyeing*—Surface-active chemicals are used in various dyeing operations (other than those discussed previously) and for

various purposes. The choice of chemical depends upon the effect desired and the operating conditions. Most dyes sold in paste form have incorporated with them a surface-active chemical which keeps the color in dispersion. Many dry colors can be pasted and dissolved more rapidly and completely with solutions of surface-active chemicals than with water alone. As a rule, the surface-active chemical used in pasting and dissolving dyes and in dyeing need not have detergent properties, should have good wetting-out properties, and should not cause excessive foam. Other properties depend on the particular dyes used and the conditions under which they are applied.

6. *Souring*—Frequently, when soft water is not available for bleaching with chlorine and for the various washings and sourings necessary in the bleaching operation, a surface-active chemical which produces soluble (or prevents formation of insoluble) lime and magnesium salts can be added to the brown sour. Such a chemical should have good wetting-out properties in acid solutions and should assist in removing lime and magnesium compounds and other impurities.

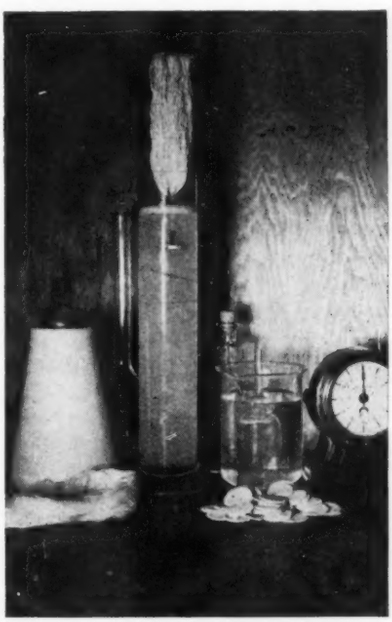
Silk Processes

1. *Boiling-Off or Degumming*—The newer types of surface-active chemicals are employed in conjunction with soap and alkali, boil-off oil, etc., in degumming silk fabrics, silk hosiery, etc. The purpose of the chemical is to increase the wetting-out, detergent, and emulsifying properties of the degumming solution. It should function efficiently in alkaline solutions at high temperatures, be compatible with the other ingredients of the bath, have good rinsability, and form soluble (or prevent formation of insoluble) lime salts. A chemical which will produce and maintain a moderate amount of foam or suds is desirable.

2. *Other Processes*—Use of surface-active chemicals in silk processes not discussed previously parallels their use in cotton processes. This is true, for example, in dissolving and pasting dyes, in dyeing and printing, and in preparing finishing solutions. However, since the dyes and finishing materials used for silk often are different from those for cotton, the surface-active chemicals used in cotton processes may not be suitable in silk processes. For instance, frequently silk fabrics are dyed in an acid bath containing dye and boil-off liquor; the acid has a tendency to split out the fat from the boil-off liquor and thus prevent foam or suds; since a flat or sudless bath is undesirable in silk dyeing, addition of a surface-active chemical which produces a good foam or suds in acid solutions is indicated. Again, most finishing solutions for silk are either neutral or acid in reaction; hence a surface-active agent used in silk finishing should have good wetting-out properties in neutral or acid solutions, as the case may be; usually the chemical should also act as a softener.

Rayon Processes

1. *Preparation of Fabrics for Dyeing*—The goods should be wet-out while they are in full width and free from tension. On continuous machines the goods enter the bath at speeds of 60 to 100 yd. per min. The surface-active chemical should have rapid wetting-out and good detergent and emulsifying properties. In the first compartment the goods begin to shrink



Apparatus used in making wetting-out test of surface-active chemicals. Apparatus for detergency test shown on opposite page

in width and change in appearance, as determined by the twist and weave. Sizes are softened, and emulsification of oils may start. In subsequent compartments these changes are completed. No chemical change should take place. Acetate rayon, if present, should not be saponified. The wetting-out bath may be either cold or warmed to not over 130° F. The actual boiling-off is carried out at or near the boil. The pH value may be as high as 10.5 if no acetate is present; if acetate is present, it must not exceed 8.2. Surface-active chemicals should be selected which have high wetting-out speeds in neutral solutions at temperatures under 130°F., but which are not affected in the subsequent alkaline boil-off baths. In continuous methods, some of the newer surface-active chemicals are efficient at concentrations as low as 0.1 to 0.2%. In batch methods, such as are used for tubular knit goods, the bath ratio is usually 30 to 1.

2. *Other Processes*—Use of surface-active chemicals in rayon processes not discussed previously parallels their use in silk and cotton processes, such as preparation of dye solutions and pastes, dyeing and printing, and finishing. In general, surface-active chemicals used in corresponding cotton and silk processes are suitable for rayon processes; however, the temperature and pH value of bath, type of rayon, etc., should be taken into consideration in selection of a surface-active chemical for any specific rayon process.

Wool Processes

Major uses of surface-active chemicals in wool processes have been considered in previous installments. Among their other uses are included preparation of stock lubricants, depitching compounds, and spotting compounds. In preparation of stock lubricants of the self-emulsifying type a surface-active chemical which has good emulsifying properties is necessary; it should produce a stable emulsion with the particular oil employed; and this emulsion should be capable of being removed readily in subsequent operations. In the preparation of compounds for removing paint, pitch, tar, etc., from wool, a surface-active chemical is necessary which is compatible with and increases the efficacy of the pine oil or other solvents employed; the usual wetting-out and detergency tests are not applicable in this case; instead, one must make up compounds of various surface-active chemicals and solvents and conduct laboratory depitching tests with them. What has been said regarding depitching compounds holds true also in the case of spotting compounds or spot removers employed for removing oil, grease, and other stains acquired by wool goods during their manufacture; that is, compounds of various solvents and surface-active chemicals should be made up and tested to determine what particular combination will give the best results.

(Previous articles in this practical series on surface-active chemicals appeared in the July, August, September, October, November and December, 1938, issues of TEXTILE WORLD—*Editor.*)

At A. S. M. E. Meeting

Textile men discuss long-draft roving and woolen and worsted machinery activity

ADVANTAGES of long-draft roving and machine activity in the woolen and worsted industry were discussed at the annual meeting of the Textile Division, American Society of Mechanical Engineers, held Dec. 7, in New York. Carl D. Brandt, of Whitin Machine Works, the first speaker, in discussing "Super-Draft Roving," stated that high total drafts are possible, because drafting is done while the fiber mass is parallel and untwisted. This, together with the proper setting and adjustment, allows positive control and better slippage of the fibers at all times.

With long-draft roving there is the question of the effect of the loss of intermediate doublings. Theoretically at least, each doubling should reduce the amount of variation that exists within the two individual strands. But considering the effect of the twist in the roving and the fact that roller drafting is not absolutely positive, it is quite possible the irregularity introduced would counteract the benefits that might be derived from doubling. Apparently the irregularity present in roving that has been subjected to a number of doublings is of a different nature only—the original long sections are broken up into a larger number of shorter sections. Which of these types is less objectionable depends upon the character of the goods to be made.

Reworked stock is always more difficult to card and spin. Reducing the number of roving processes produces a fuller and better feeling yarn or cloth. Improvement often results, as the yarns retain more life and elasticity.

Factors weighing against Super-Draft roving are necessity for a large number of sliver cans and increased waste. For example: an 8x4 by 6-in. gage Super-Draft frame will require much more can space at the back than the conventional 11x5½ by 9-in. gage slubber. When new frames are installed, allowance can be made and this additional space provided. However, on a change-over job some difficulty is encountered at times. Any system of long drafting will be dirtier than the common three-roll type, as more of the individual fibers will free themselves and follow the rolls part way around to be caught by the clearers and held as waste. Much of this waste material will collect on various parts of the frame, and, as a result, more frequent cleaning becomes necessary.

With the reduction in the number of frames required in a card room, there is a reduction in power requirements, a saving on supplies and bobbins, and a saving in labor costs. Creeling time, which normally takes up about 25% of the operative's work load, is reduced to about 3½%. A Super-Draft frame running under average conditions should produce 97% of its bobbins free of any piecings.

From one standard weight of sliver it becomes a simple matter to produce an extremely wide range of roving hanks. Together with long-draft spinning, it presents a combination almost unlimited as to yarn numbers that can be produced at a moment's notice. Yarn strength standards can usually be bettered, while whether or not size variations and uniformity standards are met depends entirely upon the quality of the drawing sliver supplied to the frame.

Machine Activity

In his address, "Twenty Years of Machine Activity in the Woolen-and-Worsted Industry," A. W. Benoit, of Chas. T. Main, Inc., stated that the loom hour is probably the best index of production in the woolen and worsted industry, and, because many looms use both woolen and worsted yarns, its activity is a reflection of the conditions in both branches. There were 19,000 narrow looms in place in 1919 and in 1938 only 8,000 remained.

Activity of Woolen and Worsted Broad Looms

Active loom-hours, in thousands

Year	Average week of year	Average week of maximum month	Raw stock consumed, millions lb.
1921	2140	2563	...
1922	2130	2577	...
1923	2560	2986	...
1924	2140	2389	...
1925	2170	2433	540
1926	1960	2235	...
1927	1900	2136	520
1928	1780	1963	...
1929	1840	1984	557
1930	1310	1463	...
1931	1430	1783	422
1932	1190	1584	...
1933	1550	2167	...
1934	1250	1649	...
1935	1840	2021	619
1936	1760	2119	...
1937	1710	2344	...
Average	1810	2140	...

Of this number, only 2,000 are active. The demand for narrow goods has been decreasing steadily as reflected in loom activity, and it would seem from indications that demand may almost reach the point of extinction.

The accompanying table shows the average weekly number of hours operated per loom from 1921 to 1937, for woolen-and-worsted broad looms.

The noticeable feature is the steady decrease in loom-hours over the period, without a corresponding decrease in raw-stock consumption. For a consumption based on the present average year, the figures would indicate that the average number of loom-hours required per week will be around 1,800,000, and the maximum not over 2,250,000. This gives a measure which can be applied to determine the number of looms which the industry can support for different numbers of weekly operating hours.

It is highly improbable that the work week will be a single 40-hr. shift, because of insufficient capacity, or a single 54-hr. shift because of opposition from many sources. Neither is the third shift likely to be acceptable in the long run, and operation for 120 hr. per week is therefore doubtful. The most probable hours will be 80 per week, or possibly a few more. This would not require more than 33,000 looms, or about 10,000 fewer than are now in place.

Apparently the liquidation of woolen and worsted mills as a whole is nearing its close, although there will be some further reduction in numbers of spindles and looms in operating plants.

There are many indications that the number of looms can be further reduced without any lessening of the amount of goods produced. Again, this does not mean the liquidation of existing weaving and finishing plants, but rather a reduction in the number of looms which they will operate.

The making of woolens and worsteds is a basic industry and its continuance at its present average rate of production is an absolute necessity. However, only those who keep abreast of the times in their mechanical equipment, who foresee style trends, and who exercise good judgment in the management of their plants can expect to continue operating. Modernization in every respect is absolutely essential.

NEW WORLDS TO CONQUER

Market expansion carries textiles into many novel fields

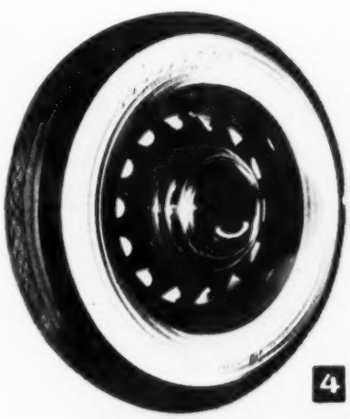
1. Smart reversible raincoat of wool and camel's hair on one side with gabardine on the reverse. Visible side shows wool and camel's hair. Coat from Harris Raincoat Co.

BATHMATS made of wool, spectator sport dresses made of velvet, topcoats made of spun rayon—these are just a few highlights in the remarkable array of new products developed by textile firms during recent months. As the accompanying illustrations on this and the next three pages indicate, there is really no limit to the usefulness of the fibers. Natural and man-made textiles are proving their commercial adaptability in various unexpected and profitable fields.

The products shown on these pages are finding acceptance in many important markets. Some, indeed, are so new that they have not yet reached the consumer. In several cases the merchandise was especially made up, some weeks ahead of being placed on the market, so that it might be available for this section. Thanks are due to a wide range of textile mills and trade associations whose cooperation has made possible this presentation of new products.

2. Formal rain-wrap, designed and created for Nona Modes by Joel Sergol, Chicago stylist; fabric is pure silk, processed by Moisture-Proof Fabrics, Inc.

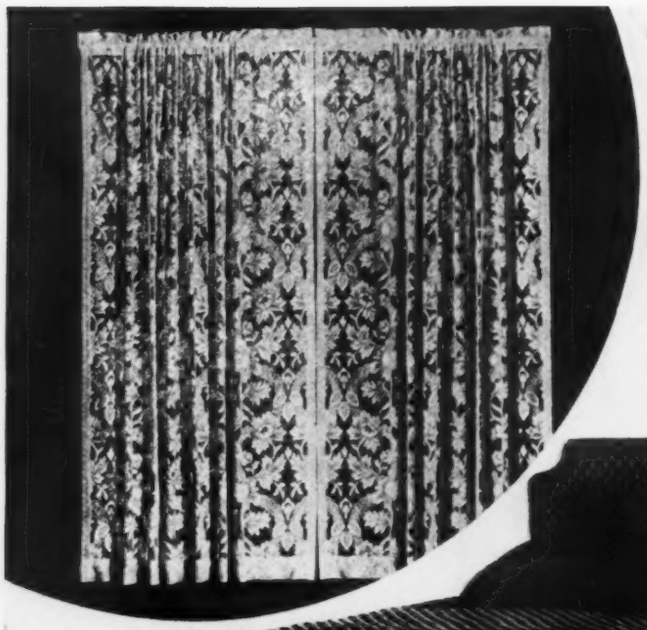
3. Beautifying the package is one of the important new trends of industry; cotton bagging, as above indicates, makes an attractive container for soap.



4. Rayon's entry into the tire construction field becomes increasingly significant as this market develops. First for truck and bus; now for passenger cars. Photograph shows Goodyear Double Eagle rayon tire made from Du Pont yarn.

5. A logical use, if there ever was one! Cotton rope and bagging now package cotton bales in form promoted by Cotton Textile Institute.

NEW WORLDS



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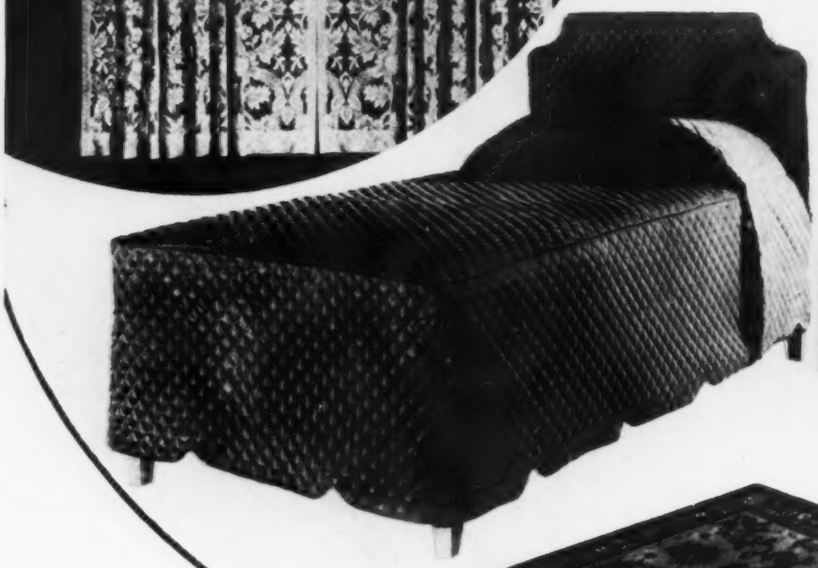

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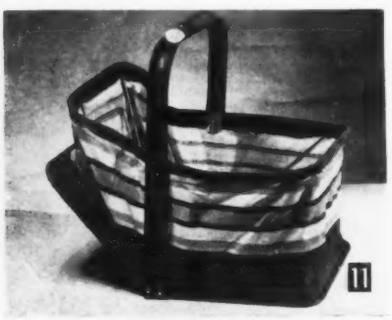
6. House furnishing continues to open new markets for spun rayon. These spun rayon lace net curtains, made by Wilkes-Barre Lace Mfg. Co., retail at $3.50 to $3.95.

7. Elegance in bed-covers, and some healthy yardage for quilted rayon. Fabric is Crown-Tested rayon. Distributed by Lewis & Conger, New York.

8. Wool is rapidly widening its acceptance as a formal fabric in women's apparel. This plaid evening coat is from Nona Modes.



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9. And now rayon-pile rugs. The sample is from experimental laboratory of a large carpet manufacturer. There is an admixture of wool with rayon staple in this sample but all rayon pile rugs are in the works.

10. Thanks to the crush-resist process, velvet now is building sales in most informal fields; this photo shows a velvet spectator sports suit.

11. And here's another growing market—picnic utensils! Folding beach basket takes plenty of cotton goods, when multiplied by the thousands. Distributed by Lewis & Conger, New York.

12. The lowly sweater wins new beauty and a new market; Angora knits now displace silk wraps in some divisions of the formal evening wear field. Garment by Shepherd Knitwear Co.

TO CONQUER

13. Wearability, one of wool's biggest assets, has brought the fiber into another new field—bath-mats. These attractive reversible mats, developed by Kenwood Mills, are washable and highly absorbent.

14. Summer blankets, hitherto a limited field, is a rapidly growing market due to the very light-weight fabrics now being made. This blanket, 72"x90" weighing only 2 lb., was manufactured by St. Mary's Woolen Mfg. Co.

15. Strength and durability, highlight characteristics of Du Pont's Cordura yarn make this textile especially suitable for men's hosiery. Cordura half-hose were introduced during 1938 by Holeproof Hosiery Co.

16. There are indications in the towel field of another victory for man-made yarn. Photo shows towel, having cotton warp with some flax content, and Snia Viscosa spun filling. Meyer & Marks Yarn Co. represents Snia Viscosa in this market.

17. New product possibilities of the knitting machine are being discovered constantly. Fort Schuyler Knitting Co., Utica, N. Y., finds a ready sale for its line of smartly styled and fashionably colored shoe bags.

18. 63 quarts of milk, made into Snia Viscosa's Lanital, supplied the fabric for this brown worsted-type dress and woolen-type coat.

NEW WORLDS TO CONQUER

19. The news that Knox Hats, famous hatters, now are selling velvet hats to their felt hat trade, suggests another market victory for the crush-resist pile fabrics.

20. Believe it or not – velvet neckties for men! This innovation typifies the widening market for velvet made possible by use of the crush-resist process.

24. Entering wedge to a vital new market! This top-coat, an important 1939 offering, is made of new Celanese spun rayon fabric; the garment was specially modelled for Textile World's *new uses insert; fabric is a 17 oz. herring-bone weave constructed of 70% spun Celanese and 30% alpaca.*

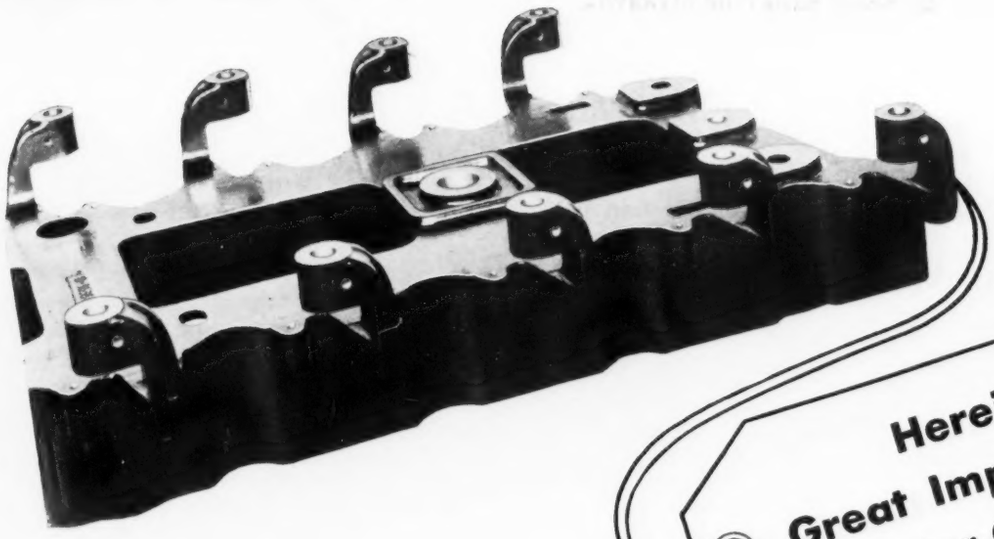
21. Talking about yardage — how's this? Cotton fabric used as protection against insect infestation in drying fruits under field conditions.

25. Likewise cotton serves another important agricultural purpose—erosion control. Cotton mesh staked in place in Monongahela National Forest.

22. Cotton fabric covering for meat has been developed by Swift & Co., which firm expects to use 20,000,000 yd. annually to preserve freshness and flavor.

23. Vast quantities of cotton yardage are consumed in this new application; the fabric is shown being used in lining an irrigation canal bed, located north of Grace, Idaho.

Photos 1, 8, 13 and 14 by courtesy of Associated Wool Industries.
Photo 3 by courtesy of *Modern Packaging.*
Photo 11 by courtesy of Cotton-Textile Institute.
Photos 10, 19 and 20 by courtesy of Velvet Guild.
Photo 6 by courtesy Home Window Decorating Guild.
Photo 21 by courtesy of Fresno (Calif.) Field Station, Bureau of Entomology and Plant Quarantine, U. S. Dept. of Agriculture.
Photo 23 by courtesy of Bureau of Agricultural Engineering, U. S. D. of A.
Photo 25 by courtesy of Forest Service, U. S. D. of A.



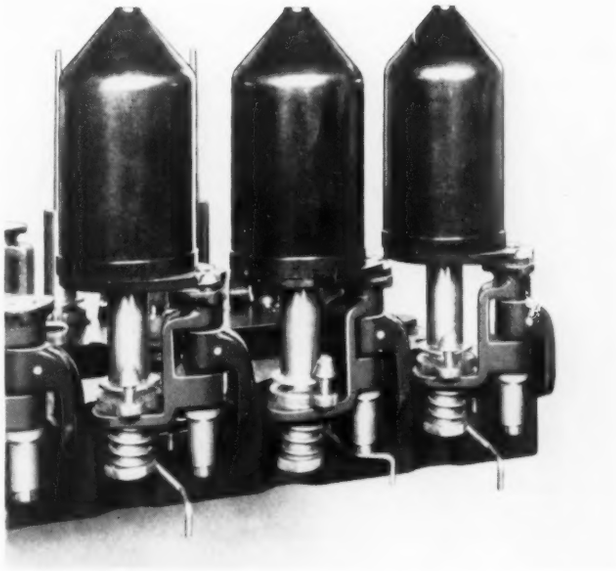
Here's a Great Improvement in Twister Construction!

THE ATWOOD UNIRAIL

This single solid piece of metal takes the place of two thousand separate parts on the average Twister. Think of it!

The Atwood UniRail Twister turns out silk or rayon yarn with a speed and precision that sets an entirely new standard of performance and economy. It renders old style, veteran machines completely obsolete.

Get the facts on Atwood UniRail as applied to *your* yarn under *your* particular operating conditions. Write or phone our nearest office.



Optional on the new Atwood UniRail Twister—Atwood Bobbin Covers for super-clean, uniform silk yarn at high speed with minimum tension. Neat, simple, practical, snaps on or off in a jiffy.

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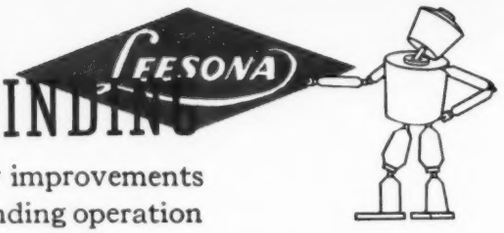
THIS IS NO. 13 OF A SERIES ON

GETTING THE MOST FROM WINDING



Information about winding designed to show improvements in winding equipment and new ideas in the winding operation

PREVENTION OF OIL LEAKS ON NO. 90 WINDER

Reports from service calls show that many mills are asking for suggestions on how to prevent oil leakage on their No. 90 Winders. The information below should make it possible for any mill to eliminate this trouble, provided that the machines are in good operating condition.

Check the Oil Return Hole

Many mills are not aware of the return oil hole (A) in the gainer frame under the drive shaft. This hole allows oil escaping along the drive shaft to return into the case. However, when the level of the oil in the case is too high, the hole acts as an overflow; it is therefore important to keep the oil supply down to the proper level.

Sometimes, even with the oil at the proper level, waste collected around the oil grooves on the hub of the driving pulley will act as a wick to draw oil out of the gainer case through the drive shaft bushing. This waste should be removed and the oil return hole cleaned out.

The same trouble may exist at the hub on the spindle on the outside of the frame. The spindle should be partially withdrawn and waste removed so, in case of leakage along the spindle, the oil will be slung off, returning to the frame through the oil hole (B). With the spindle withdrawn, the oil hole should be cleaned.

At the End of the Drive Shaft

If the drive shaft can be moved in and out, it indicates wear on the ends of the bushing contacting the driving pulley and the collar. This causes a pumping action, the bushing must be replaced.

Next, remove the driving pulley and try to move the drive shaft up and down. If oil oozes out between shaft and bushing, then the hole in the bushing is worn. A tight driving belt will cramp the shaft and cause the bushing to wear.

Leaks May Also Occur

at the oil tubes (C) between the cases. The oil tube connections are inclined to settle and must be tightened once a year. These tubes distribute oil through the cases, and naturally the machine must be level to maintain correct amount of oil in each case.

The machine should be equipped with regular oil guards. If they are removed, oil spray from the gears will cause leaks at the traverse bar bearings, especially on the side nearest the gears. Spray will also cause oil to leak under the covers.

To prevent loose oil from leaking through, the nut holding the Traverse Bar Support Bracket at "D" should be tightened about once a year.

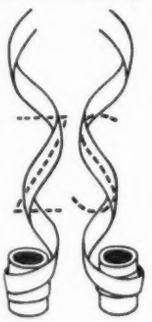
Proper Lubrication

The oil is considered at the proper level when the top of the boss (E) is just exposed over the surface of the oil. Another place to check the proper level is halfway between top and bottom of the tubes (C) connecting the cases.

Once every three years all the oil should be removed from the cases by means of a suction pump and thrown away.

The grade of oil recommended should have a Saybolt viscosity of 120 to 130 seconds at 100° F. Standard Oil Company's Gargoyle Velocite C or equivalent should be satisfactory. Oils with a higher Saybolt viscosity are too heavy, causing the winder to heat up and also increasing the horsepower required.

TWIST DISTURBANCE (No. 50 Winder)



When removing yarn over the end of any supply package, there is always the question of whether twist is being added or taken out. There is a very simple test which demonstrates what happens.

The illustration shows two identically wound packages of narrow ribbon or tape. Their positions have been reversed, that is, the end of the tube which is down in one case is up in the other (changing the direction of the wind). You will note that the one on the left, unwinding clockwise, has added "Z" twist by removing the ribbon over the end of the package. The one on the right, unwinding counter-clockwise, has added "S" twist. You can demonstrate further by winding narrow strips of paper or ribbon around your finger.

This test proves that twist is added or taken out at the winder depending on the way the supply package is put on the supply spindle. When one end of the package is up, more twist is added to S twist yarn; or taken out of Z twist yarn. When the other end of the package is up, more twist is added to yarn with Z twist; or taken out of S twist yarn. When yarn is taken over the end of the package, twist is disturbed one turn for every circumference of the supply package.

Operators having trouble with high-twist yarn kinking on some winding spindles will find they can get uniform results by making sure the proper end of supply package is up in all cases so twist is ***taken out*** instead of added.

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THE OVERSEERS' CORNER

"SECRET" PROCESSES AND NOTEBOOKS

A Pete and Bill Discussion

BILL DROPPED the little black notebook in his desk drawer and carefully locked the drawer as Pete entered his office.

"Ah! ha!" chortled Pete, in what he thought was a good imitation of Sherlock Holmes. "Caught you at it again. I suppose you were pouring over your secret formulas which no one in the world knows except you—or so you think."

Bill flushed slightly under Pete's kidding. It always embarrassed him for Pete to bring up the subject of the little black notebook in which he kept certain formulas, machine settings, and the like, worked out over a period of years. He sincerely believed that these facts could be duplicated by no one in the industry, and he would not even let his second hand see the contents of the book.

"Pete," declared Bill somewhat testily, "it seems to me that we have been over all of this before. There are certain things about my job which no one in the world but me knows, and I do not intend passing the information around gratis. For one reason, it is insurance against my ever being fired, because it would take the next man a long time to learn as much as is in that book."

"You're rather optimistic, Bill. There aren't any more 'trade secrets' in our business. I'd bet that Joe Jones, who runs a job similar to yours over in the next county, could duplicate anything you have in that little book."

"I'd like to see him try," snorted Bill. "Everyone isn't as smart as you are. Probably you never write anything down in a book. You just keep it all on tap in your magnificient mind!"

"Oh no, Bill, I keep a notebook too, but mine is on top of my desk where any one in the department can refer to it any time he likes. I learned a long time ago that the things I work out 'exclusively' are usually in use somewhere else, or that the machinery people have known about the process all along."

"Okay, Pete, okay! Give away everything you learn and see where you end up when everyone in your department knows as much about the job as you do. For me, I'll keep certain information to myself as long as I am on this job."

What attitude should overseers take toward "trade secrets"?

Letters From Readers

A Letter to Bill

("Personnel Dept.", Pete & Bill, July, 1938)

Dear Bill:

After reading a recent issue of TEXTILE WORLD we think it is time we come to your defense. There are several of us—two superintendents, a shop foreman, and three fixers—who believe you are within your rights when you balk at having some young, inexperienced fellow hire your subordinates. You have spent years learning your trade and we are convinced you are more capable of distinguishing the good from the bad when it pertains to people who apply for jobs. That is one of the reasons why you are foreman, that and the fact you know your business thoroughly.

Sure Bill, as Pete said, you can still do the firing, the "dirty" work no one relishes, not even a personnel manager. It is O.K. with him if you have to discharge numerous incompetent people he has hired. And if it happens that he would also be responsible for the firing of help then pray tell us why he is not the foreman instead of you? We shall tell you. For the simple reason he does not know enough about the business. Is that not an admission you are a superior judge of applicants?

It is only natural that you should bring in a few friends or a relative or two, but what assurance do we have the personnel manager would do otherwise? He is only human the same as you are and it is nonsensical to intimate that he will not show favoritism to certain people. That kind of man is few and far between, if in fact, there are any to be found.

Another item Pete did not bring out is that as long as you are responsible for the profitable running of your department, why should you not select your own help?

The average textile mill is too small to be encumbered with the expense of a personnel department. The average set-up permits the foreman or superintendent to handle the situation nicely. It might be advisable to have a personnel manager in a plant that employs thousands of people or where the help is mostly labor or semi-skilled. In the large plants the foreman is nothing but a cog in the wheel, and usually it matters not who may be hired unless the quality of the work becomes so low he is forced to rebel in self defense.

We could take pages to point out the different reasons why this important phase of the business should be left up to you, but anyway stick to your guns! We agree with you 100%. And our mills are not full of friends and relatives; we have capable workmen who can turn out the most and best goods. —R. D. C.
(*Tenn.*)

Let Employees Solve Own Problems

(Loan Sharks, Pete & Bill, October, 1938)

Editor, Overseers' Corner:

Regarding the problem of loan sharks, I agree with all that Bill says. It seems that we all must learn by sad experience. Employees as a whole would eventually resent any interference in their personal affairs, no matter how well intentioned on the over-

CONTRIBUTIONS to the letters and practical helps in "The Overseers' Corner" are paid for when published without regard to length. We use letters (not over 200 words) discussing the material on this page or any other pertinent matter whether of mechanical, managerial or just plain human interest. Those who contribute practical helps or kinks which are published (not over 500 words) will be paid additional for an appropriate sketch to illustrate their device. It is not necessary to submit finished drawings. Contributions of greater than specified length may be given consideration as articles. If these pages interest you —contribute something to them to interest others. Address Editor, Overseers' Corner, Textile World, 330 West 42d St., New York.

THE OVERSEERS' CORNER

seer's part. If requested, an overseer should advise employees to the best of his ability. He should show genuine interest in their welfare but, there are certain limits he should not exceed.

—P. M. C.
(*Washington*)

Oval- vs. Flat-Wire Reeds

Editor, Overseers' Corner:

I have read with interest the letter on oval- vs. flat-wire reeds published in the Overseers' Corner of the November, 1938 issue, and believe it is one of the most important questions that has come up in a long time.

Having had considerable experience with oval-wire reeds, I feel that I am able to comment on this subject. The oval-wire reed is safe to use on low-sley constructions, but on high-sley fabrics or fabrics having high pickage I would advise against its use. Although it might, in such cases, help in weaving, allowing knots, slugs, etc., to weave through without breaking, the damage that oval-wire reeds can do is far greater than that of a knot or slug. Further, such damage usually cannot be seen while weaving. In high-count constructions, the oval wire will partially cut or break the filling while weaving; when the fabric is finished, the cloth appears to have numerous breaks in the filling.

Therefore I advise use of flat-wire reeds on high-count fabrics.

—John Picone
(*Paterson, N. J.*)

Safety for Frame Fixers

The safe frame fixer avoids injury around machines by doing the following:

1. He stops the machine before he attempts to repair same. He notifies all those who have authority to start the machine or he locks the machine so that it cannot be started, or puts the safeguard on the machine.
2. Even though the machinery has been stopped, he is always alert for the chance that it may be set in motion.
3. He keeps all belt guards and shifter rods in order.
4. He does not undertake to put belts on with hands. He uses a belt pole or stops the motor.
5. He checks each frame two or three times a day to see that it is in perfect running order and to see whether there is anything about it that is unsafe. He reports any broken machinery that he can't fix to the overseer.
6. He keeps all guards down and reports all accidents and unsafe practices to his overseer.
7. He puts the frame parts he is taking out or putting in under the frame, together with his tools—and not out in the aisles.
8. He is careful to use the right tools that are the right size for the job. He faces the jaws of an adjustable wrench in the direction of the pull.
9. He keeps the safety catch on when he is changing or setting the gears on a machine. He keeps the guard over all gears.
10. He looks to see if anyone is working on the frame before starting it up. He does not clean any part of the machine while it is in motion.
11. He bends down the ends of all cotter keys to prevent injury on same. If he has to work where there are sharp edges, he covers the sharp edges with cloth.
12. When pushing on a wrench in a tight place, he does not wrap his fingers around the handle, but pushes with an open palm, so that if it slips he will not skin his knuckles. He knows that it is safer, in most cases, to pull on a wrench rather than to push on same.
13. He replaces all safeguards that he may have removed while working, for he does not want to be responsible for an accident.
14. He uses the right oil for the machine he is oiling and he does not use too much oil, for he knows that too much oil will leak out on the floor and may cause someone to fall, and he does not want to be responsible for an accident. If oil is spilled, he wipes it up.
15. He knows it is foolish to try to oil too many bearings from one position; so he shifts his position so he can oil in safety.
16. He avoids hurrying and he keeps his mind on his work.

—National Safety Council

Dust Room Filter

Editor, Overseers' Corner:

You will be interested to learn that an item, "Dust Room Filter," appearing on Page 99 of the November number of Textile World, made quite an impression on a cotton mill man of my acquaintance, and may be the means of solving a very annoying problem in his picker room.

His dust room is too small, which causes the air pressure from the picker fans to come out of the dust flue with such violence as to carry dust, lint, etc., with it. This dust is settling on the building and grounds, and spoiling the lawn. His first thought was to enlarge the dust room, but this would cost too much. I called his attention to the aforesaid item.

After reading the description, and studying the drawings that accompanied it, he was very enthusiastic about it, and thinks it is worth trying out. He believes it will make the use of a dust flue unnecessary, and eliminate disagreeable drafts, which are always present in the picker room with the conventional arrangement.

—Julian W. Hughes

Editor, Overseers' Corner:

We note in the "Overseers' Corner" of your November issue, Page 99, that there is presented a plan of filtering dust and air.

We have a problem of properly disposing of our picker dust and if consistent with your policy we would appreciate it if you would furnish us with the name of the mill that is handling their dust in this manner, and what success they have experienced.

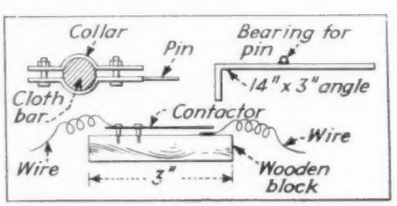
—Thomas H. Murphy

Overseers' Practical Helps

Pin-Roll Stop-Motion

In double-shuttle weaving of plushes and velvets it often happens that one piece or the other gets caught by the pin roll and, in winding around it, causes holes or other such damage. Here is a description of a simple, dependable device, which will stop the loom before the cloth makes a complete turn around the pin roll.

A collar, such as is shown at *A* in the accompanying illustration, with a pin protruding from the front of it, is fastened to the cloth bar. Next, a 14-in. x 3-in. angle is placed on this pin by means of the bearing shown. Then, a contactor is fastened on the filling stop-motion bar, and connected with a wire to the magnet. As soon as any cloth starts to go around the pin roll, the end of the angle under the cloth is permitted to swing up; the other end, containing the hook, will come down on to the contactor, and the loom will be stopped before the cloth has a chance to go completely around the pin roll.



Pin-roll stop-motion prevents damage to pile fabric

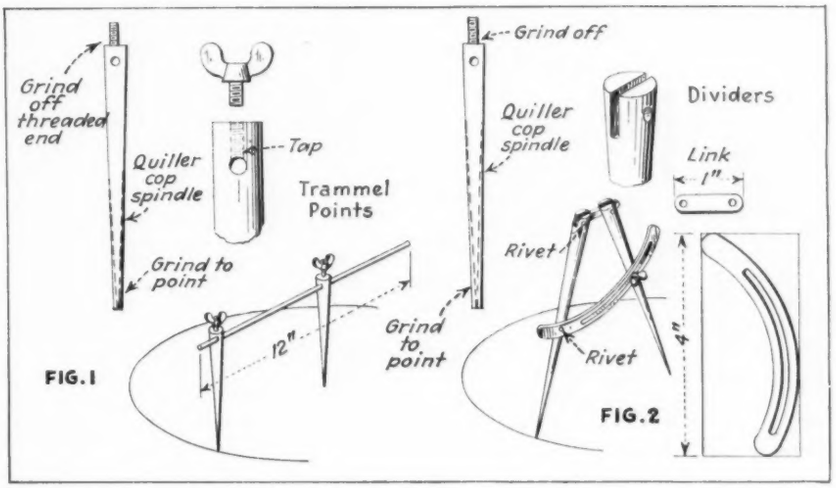
—Herman Hesse
(*Clifton, N. J.*)

Vegetable Shortening in Thermometer Well

When temperature-measuring instruments, such as indicating or recording thermometers or temperature controllers, are applied to industrial processes, wells must often be provided to protect the heat-sensitive element or bulb from mechanical injury or corrosive influences. These wells must be filled with some fluid

THE OVERSEERS' CORNER

that will insure the rapid transfer of temperature variations across the space intervening between the sensitive element and the wall of the well. Mercury, due to its high heat transfer coefficient, is the ideal liquid for this purpose, but can only be used where both the bulb and well are made of iron, steel, or some other metal or alloy that will not dissolve into an amalgam. Where the fluid must come in contact with metals having an affinity for mercury, such as copper, brass, bronze and silver, it is common practice to use cylinder oil. Commercial grades of cylinder oil, however, while satisfactory at moderate temperatures are not suitable for the higher temperatures, as they have a tendency to carbonize and cement the bulb in the well. When this occurs, the connecting capillary tubing is often broken in attempting to remove the bulb, necessitating an expensive factory repair job. In a large rayon plant this trouble has been successfully eliminated by using, in place of the cylinder oil, a vegetable shortening, such as "Crisco," which has a high resistance to carbonization. —H. C.



Useful tools can be made from discarded quill spindles

Trammel Points and Dividers From Quill Spindles

Two discarded quill-winder spindles, of the type shown in the accompanying sketch, can be used in making trammel points. Cut off the threaded end by grinding flush on an emery wheel. Place the spindle beneath a power drill, drilling a hole in the top down through the spindle to reach the hole in the side. Tap this drilled hole to take a small size screw as shown. One arm can be fastened permanently if desired. Grind the spindle points to a needle point, being careful in the grinding not to soften the metal. A 1-ft. hard-steel wire (harness wire, for example) is utilized for the beam. If larger than a 2-ft. circle is needed, a longer beam can be placed in position. For cutting emery or sandpaper disks for the grinding wheel, the trammel points are necessary for a neat and satisfactory job. They are also useful and speedy for measuring lengths on or about machinery.

Discarded quiller spindles can be used in a similar manner to make dividers. Two spindles are used as shown. Grind off the threaded end of each spindle. Cut a slot in this end to a point slightly below the hole. Grind one side of the spindle to allow spread. Rivet a 1-in. length of thin brass or steel, connecting the two spindles together.

Drill a hole in each spindle 2 in. from the top. The wing adjustment is made from a 4-in. length of thin steel or brass cut in the manner shown. One end is riveted to one of the spindles, but not too tightly to prevent proper adjustment. A small threaded bolt is next fashioned by cutting down the head end and riveting it to the other spindle to allow the centering of the wing adjustment. A small wing nut is used to tighten the wing when correct measurement has been made.

Questions and Answers

Knitted Garments Damaged

Technical Editor:

We are enclosing one of four garments that were returned to us by a customer. You will note upon examination that the left side of the garment has apparently been eaten away. We thought that the fabric might have been tendered in processing, but upon testing the rest of the garment we cannot find any other part that will give way. This same damage has happened on all four garments in the same spot. We shall appreciate an opinion from you as to what might have caused this damage. (8595)

We fail to find any evidence that the damage was due to over-oxidation in bleaching or to an excess of antichlor. It is possible that the gum or paste around the buttonholes might be the cause of the defect, but we are by no means certain that this is the case.

We regret that we are unable to give you any more definite information, but this seems to be one of those particularly difficult problems which cannot be solved without actually being present at the mill during manufacture of the fabric.

Balancing Woolen-Mill

Technical Editor:

We have 32 automatic C & K looms, operating at 123 picks per minute. They are running on wool-warp, wool-filled cloth, 24 ends and picks, with a 10-cut ground yarn and an 18-cut fancy —the fancy comprises 5% of the total weight. The loom width is 65 in.

Our cards consist of four-cylinder sets, 48x60, taking off 84 ends of roping. These are tape condensers. How many cards should be required for these 32 looms?

How many Johnson & Bassett high-speed, latest-model, 3-in. gage, 288-spindle, giant-package mules would be required to balance carding production and weaving consumption? (8475)

Assuming the loom weight of this cloth to be 16 oz. per yard, 5% of which is composed of 5.4-typp (3.38-run, 18-cut) fancy yarn and 95% of 3-typp (1.88-run, 10-cut) yarn the respective quantities of yarn required per 40-hour week are 8,135 lb. of 3-typp and, in round figures, 430 lb. of 5.4-typp yarns.

The number of cards required to take care of this production depends on the nature of the stock used. Providing the raw material consists of a good blend, the fibers of which have

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been well opened up and properly mixed, we recommend installation of six cards of the type mentioned.

If run at maximum speed, this equipment should be more than ample to balance your loom production, but in the interests of good carding and satisfactory spinning, the cards should not be run at maximum speeds.

Six mules of the type listed would be necessary to balance the carding and weaving production and consumption. However, we believe that five mules would probably be sufficient, providing the twist factors could be reduced and the roving from the carding is of uniform consistency. Moreover, it is quite possible that the yarn consumption as computed may be in excess of your actual requirements. You should be able to calculate this more accurately on the basis of number of ends and picks of each respective yarn, instead of on percentage by weight of woven cloth.

Hosiery Dyeing in Rotary Machine

Technical Editor:

Is it practical to conduct dyeing operations in Smith-Drum hosiery machines with the lids closed? We are using black silk dyes in certain formulas that, at times, do not work well under pressure of closed lids. Yet, when the lid is opened it makes for a bad fog condition in the room. Is it possible to get dyes that will work properly with the lids closed? (8578)

Smith-Drum rotary dyeing machines are designed to operate with the covers down. The covers are not meant to build up pressure, but are used to minimize heat losses and prevent undue dyehouse fog. The pressure built up in a Smith-Drum hosiery dyeing machine with the cover down is negligible and, for all practical purposes, is the same as the atmospheric pressure outside the machine. No pressure can build up because the overflow pipes in back of each machine equalize the pressure within the machine to that of the atmosphere.

The trouble experienced with certain dyes when the cover of the dyeing machine is closed is not due to pressure, but to the chemical reduction of the dyes when subjected to prolonged boiling in contact with certain metals or alloys.

It is a well-known fact that several silk black dyes, notably of the Sulphocyanine-Black type, exhibit the above reaction when subjected to a prolonged boil with the covers down. However these same dyes give fairly satisfactory results when the covers are raised, allowing the oxygen of the air to come in contact with the splashing liquors and thus counteracting the reducing effect upon the dye.

Selection of the proper dyes permits use of Smith-Drum machines with their covers down during dyeing, which is the proper way of using these machines. Dye manufacturers will be glad to recommend suitable products.

Throwing Tussah Silk

Technical Editor:

We are experiencing considerable trouble in the throwing of Tussah silk. The winding operation is not bothersome, but we run into difficulty when we attempt to unroll the raw strands from the winder bobbins. It seems that the lack of natural gum in the raw thread causes the strands to split and break individually, thereby causing a considerable waste of time in locating the new complete end.

Is there some type of sizing used commercially today in the raw winding operation that might allow us to unroll these raw strands in a doubling operation after the raw winding is completed? On the other hand, are we faced with a mechanical problem that might necessitate placing some twist in the raw stock as it is being wound? (8607)

Tussah should not be wound on a small-diameter-barrel spool, but on the largest barrel obtainable. Furthermore, the traverse bar should be speeded up to deliver not over ten wraps per stroke, and fewer if possible on your machines. The more pronounced the diamond wind, the greater the ease in locating a broken end.

Tussah skeins should be opened and laid flat in a layer, sprayed with a mixture of neats-foot oil and Japan wax, covered with another layer and sprayed again; this operation is repeated until the lot is completed, and the yarn then allowed to stand for several hours so that it will absorb the oil uniformly. It can then be delivered to the winders.

For Good Woolen Roving

Carders must maintain proper feeds, speeds, and settings

By A. WARD FRANCE
Philadelphia Textile School

ALTHOUGH tape-condenser woolen cards are being increasingly used, recent estimates indicate that at present approximately 60% of all woolen cards installed in textile mills in this country still use ring doffers. This article deals specifically with production of good roving on ring-doffer cards; however, the suggestions contained will be found to be applicable in many respects to cards of both types.

PRODUCTION of good woolen roving requires, first of all, even feeding. This begins with a well-regulated automatic feed of the Bramwell type. A double-fulcrum scale—that is, one having two balancing knives instead of one—gives more even weights than the single-fulcrum type, and a cover attachment which clamps over the weighing pan when it has reached its proper weight is also a help, as it prevents any stock from dropping into the pan after the weighing is completed. Further, the comb on the upright spike apron should be set close to the pins so that no large lumps go over the top; otherwise the pan will be overbalanced when it tips and stops the feeding.

In cards in which the second breaker is connected to the finisher by means of an angle stripper, the feed rolls of the second breaker must take the stock evenly from the intermediate feed in order that there will be an even sheet of stock on the finisher cylinder. If the rolls feed the stock in lumps, the roving will show these lumps, because, while the card opens the stock, it has no way to change the distribution made by the feed rolls. Usually the rolls are set close enough so that a piece of letter paper will show teeth marks when it is run between them. The bottom feed roll should be set to the lickerin with a No. 22 gage; this setting will keep the roll clear. If this roll is not set correctly, it will fill up and pieces of wool may be stripped off by the lickerin; such a condition will cause lumps in the roving. The top feed roll will be kept clear by the clearing roll, and the clearing roll will in turn be kept clear by the lickerin.

Lickerin Speed

The speed of the lickerin has much to do with production of good roving.

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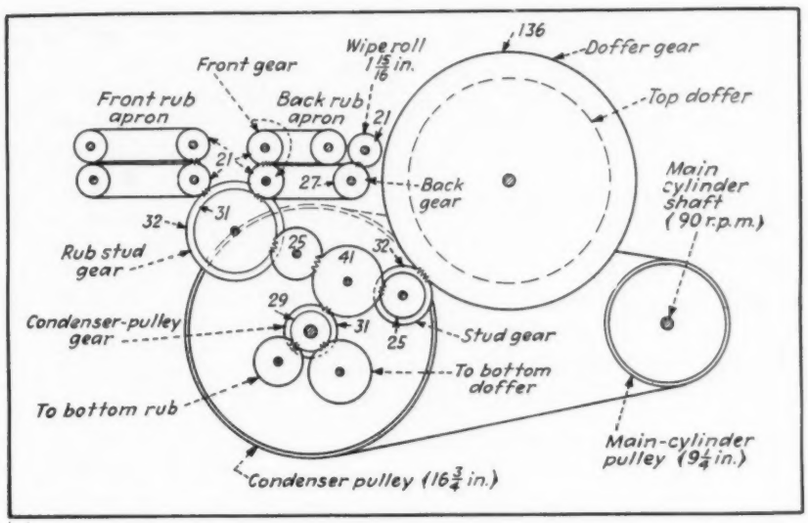

Gearing for top doffer and rub aprons of woolen card. Numerals indicate number of teeth in gears

The ratio of its surface speed to that of the feed rolls should be about 280 to 1. For example, if the feed rolls are moving 1 ft. per min. the lickerin should have a surface speed of 280 ft. per min., or 188 r.p.m. for a roll 5¾ in. in diameter outside wire. If the lickerin is operated at much less than the above-mentioned ratio, lumps will go over the top; if its speed is correct, small particles will be fed continually.

A lickerin fancy will help to prevent the lickerin from filling up. It should be set rather deep into the lickerin and have a surface speed of 2 to 1 over it. Steps must also be taken to prevent the fancy filling up, since, in such a case, the tumbler will strip off pieces which find their way into the roving and show up there. To prevent this, set the fancy to the tumbler with a No. 28 gage. This setting should keep both lickerin and fancy from getting a thick layer of stock on them.

Doffer Settings

The stock must be at the points of the cylinder if the ring doffers are to remove it properly. To obtain this position of the wool the main fancy must not be revolving too slowly and must be set at a proper depth into the cylinder wire. For medium wools, the surface speed of the fancy should be in the ratio of about 1½ to 1 over the cylinder; e.g., a fancy 12 in. in diameter outside wire should have a surface speed of 1,725 ft. per min. (550 r.p.m.) when the main cylinder is revolving at the rate of 1,150 ft. per min. The fancy should be set into the cylinder to a depth of not over 1/16 in.—both sides, of course, being set alike. If desired, the wire on the cylinder may be chalked before turning the fancy; this will show just how deep the fancy is meshing.

Ring doffers should be set close to the main cylinder. For medium wools, set the bottom doffer tight with a No. 28 gage and the top doffer slightly further away. This will enable the bottom doffer to get a bit more of the stock and will help to equalize the weights of top and bottom spools. For the same reason, it will be found desirable to drive the top doffer two teeth faster than the bottom doffer is driven.

Condenser Adjustments

There are several adjustments that can be made on the condenser to get the proper relation of surface speeds between the wipe roll and the doffer and between the wipe roll and the rub aprons. Reference to the accompanying sketch will help clarify this point. This illustration shows the gearing for the top doffer and rub aprons of a card. The main cylinder is 48 in. in diameter and is running at 90 r.p.m. There is a 9¼-in. pulley on the main-cylinder shaft, driving a 16¾-in. pulley on the condenser.

The formula for calculating top-doffer surface-speed is as follows: (R.p.m. of main cyl. × cyl. pulley × large gear on condenser pulley × large stud-gear × doffer diam. outside wire × π) ÷ (condenser pulley × small stud-gear × doffer gear × 12) = Top-doffer speed, in feet per minute. With the particulars given in the diagram and mentioned above, this speed would be calculated thus: (90 × 9¼ × 31 × 32 × 12¾ × 3.14) ÷ (16¾ × 25 × 136 × 12) = 48.37 ft. per min.

For calculating wipe-roll surface-speeds, the following formula is used: (R.p.m. of main cyl. × cyl. pulley × large gear on condenser pulley × back gear of back rub apron × wipe-roll diameter × π) ÷ (condenser pulley × front gear of back rub apron × wipe-roll gear × 12) = Wipe-roll speed, in feet per minute. Using a 1 15/16-in. roll, and the other particulars already mentioned, this would be calculated thus:

(90 × 9¼ × 31 × 27 × 1 15/16 × 3.14) ÷ (16¾ × 21 × 21 × 12) = 47.85 ft. per min.

It will be noticed that the doffer seems to over-run the wipe roll. However, the thickness of the web seems to play a part here, for at the above speeds the doffer is wiped clean without tension. This can be seen by removing the wipe roll and examining the strips between the doffer and the rub.

The formula used in calculating the surface-speed of the back rub apron is: (R.p.m. of main cyl. × cyl. pulley × large gear on condenser pulley × apron diam. plus twice apron thickness × π) ÷ (condenser pulley × front gear of back rub apron × 12) = Speed of back rub-apron, in feet per minute. Numerically:

(90 × 9¼ × 31 × 2½ × 3.14) ÷ (16¾ × 21 × 12) = 47.95 ft. per min.

The front apron should run at a surface speed that will keep the roving from running too slack between the two aprons, but not so fast that a draft develops or any strain is put on the roving. Calculation of front-apron surface speed is according to the following formula: (R.p.m. of main cyl. × cyl. pulley × large gear on condenser pulley × large gear on rub stud × apron diam. plus twice apron thickness × π) ÷ (condenser pulley × small gear on rub stud × gear on front rub apron × 12) = Speed of front rub apron, in feet per minute. Expressed numerically, this would be: (90 × 9¼ × 31 × 32 × 2½ × 3.14) ÷ (16¾ × 31 × 21 × 12) = 49.5 ft. per min.

If a stock coarser than ⅜ blood is run, it may be necessary to slow the fancy so as not to throw the stock in the air. It may also be necessary to use a smaller gear, in place of the 32 doffer gear, to slow the doffer; this will put more tension on the stock at the wipe roll. The front apron may require more speed to keep the ends

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straight between the front and back rub aprons; this can be achieved by changing the 32-tooth front drive to a 33 or 34 gear.

It is, of course, not necessary to go through the above calculation for each change. However, such calculations make it possible to determine on any card, by following the gearing, whether or not the parts are in balance.

Lubrication and Electrical

Problems hold spotlight at S.T.A. Master Mechanics' meetings

LUBRICATION and electrical problems were discussed at the meeting of the Northern Master Mechanics Division, held recently at West Durham, N. C. L. M. Kincaid, master mechanic, Kendall Co., Paw Creek, N. C., presided as chairman.

Discussion by Northern Group

A summary of the discussion on lubrication follows: The point of application of oil to bearings is very important. Loom cost runs from $6 to $15 a year per loom, and lubrication is an important part of this. P. B. Parks, Sr., manager of Nos. 1, 4, and 6 plants of Erwin Cotton Mills Co., Durham, N. C., pointed out that rocker shafts on looms require an entirely new technique of lubrication as compared with that of several years ago. Despite the fact that grease is recommended for general use with new high-speed looms, he said that the clearance is too close. Therefore he runs oil at first, and later changes to grease. Complaining that he has had trouble with large-package, high-speed roller-bearing spindles, Mr. Parks was told by Bruce Cotten, of Socony-Vacuum Oil Co., Charlotte, N. C., to try an oil of about 70 sec. viscosity. Another member described a condition whereby lineshafting beneath the floor, driven by belts from above, is lifted by the belts—which have to be extremely tight in order to prevent slippage. A pick-up ring is employed, but often the bearings burn out. Mr. Cotten said that grooving the bearings and using a well-formed oil might help. The grooving should be designed to throw the pressure to the center of the bearing. Too much grease sets up friction in bearings; a damp surface on the race is enough.

Power savings through the mill can be effected by the master mechanic in many ways. Shafts should always be properly aligned and tested with instruments at least once a year. Lights are often left burning when they are not needed. Proper warming up of the mill will cut peak load, as will starting up machines on a staggered schedule. G. C. Queen cited a test whereby he reduced his load on a lineshaft from 51.2 hp. to 48 hp. by installing ball bearings. On a similar test on a spinning frame, he found that he could save 7% power cost by the use of ball bearings. Felt oil retainers in the top of bearings will save power. Proper gaging of motors and good contacts reduce power costs. If more than three coils are cut out of a motor, the chances are that there will be a loss in efficiency which will offset any apparent power savings. In one plant, a discount was received on 20,000 kw. of current by reducing the demand meter only 0.2 of a point.

L. M. Kincaid, master mechanic at Paw Creek plant of Kendall Co., who presided at divisional meeting of S.T.A. at West Durham, N. C.

The advantage of asbestos-covered wire for winding motors over ordinary cotton-covered wire is that cotton begins to break down at about 100° C., whereas the asbestos will stand a much greater heat. Rewinding with asbestos costs 15 to 20% more than with cotton, but it is advisable to use wire of this type in any motor which is likely to run at 70° C. or higher temperature. In one instance, a 15-hp. motor with an average starting load of 50 hp. and running load of 8 hp. burned out its original two-speed winding in a short while. It was rewound single with cotton-covered wire which lasted only two months. Two years ago it was rewound with asbestos-covered wire and has been running satisfactorily ever since that time at an operating temperature of 150° C., so hot that it smokes and melts the grease. No one offered any first-hand information on glass-insulated wire for rewinding motors, but Secretary Ellis Royal read a paper from a manufacturer, which said in effect that glass would not supersede cotton except for high-temperature locations and use with concentrated chemicals. Temperature limitation guarantee is the same as for asbestos—70° C. for open motors, and 75° C. for closed motors in normal room temperature. Experiments have shown glass-insulated coils to withstand deterioration at 200° C.

Southern Master Mechanics

Lubrication practices were also considered at the meeting of the Southern Master Mechanics Division, held at Spartanburg, S. C. Van Kay, master mechanic, Judson Mills, Greenville, S. C., presided as general chairman. Summary of the lubrication discussion follows:

A stable oil with a viscosity of 400 to 450 sec., designed to resist corrosion and sludging, was recommended for the average ball or roller bearing. A prepared cup grease is advisable for use with a cylinder operating at 1,000 r.p.m. The bearing should be greased at least once every six months. Ball bearings should be cleaned every two years by pressing the old grease out and running the bearing for 10 min. with the cap open. One member said that 90% of his shop work is the direct result of improper lubrication practices. Others confirmed this. It was agreed that the proper procedure in oiling a loom is to clean, tighten and lubricate it in sequence. Considerable oil is wasted by lubricating a loom in operation, as the lint soaks up a great deal. A member suggested that loom manufacturers could improve the operation of the average loom by mak-

Featured at a number of the fall meetings of the Southern Textile Association was a talking picture, "The Inside Story of Lubrication," presented through the courtesy of Socony-Vacuum Oil Co. Bruce Cotten, Charlotte, N. C., representative, presided over the showings and answered many questions relative to lubrication problems. Accompanying Mr. Cotten at one of the meetings was F. H. Trewin, assistant technical manager.

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ing a study of the location of the oil holes at the end of the loom and changing some of them. A general complaint was that the average oiler over-greases his machinery. It was suggested that a responsible man be properly trained and placed in full charge of lubrication as insurance against improper oiling and wasted materials.

The use of an oil circuit-breaker in starting up heavily loaded electric motors was recommended as a means of reducing repair bills.

Boilers which carry light loads in the summer may be operated less expensively by blocking off part of the furnace during the warm season. This applies to both hand-fired and stoker-fired boilers. Furnace grates will last much longer if stopped holes are knocked out once a week.

Yarn and Cloth Manufacture

Discussed at Piedmont and Eastern Carolina meetings of S.T.A.

CARDING, spinning, slashing, weaving, and lubrication topics were considered at the meeting of the Piedmont Division at Charlotte, N. C. B. M. Bowen, superintendent of Salisbury (N. C.) Cotton Mills, presided as chairman. J. L. Brannon, overseer of carding and spinning, Hermitage Cotton Mills, Camden, S. C., led the carding discussion. J. C. Edwards, superintendent of Morgan Cotton Mills, Inc., Laurel Hill, N. C., presided over the spinning session. A. W. Benoy, assistant manager, Consolidated Textile Corp., Shelby, N. C., was in charge of the slashing and weaving portion of the meeting.

Piedmont Section's Discussion

Air stripping on cards was agreed to be superior to older methods, because the work is cleaner, there is less damage to clothing, and three times as many cards can be stripped at the same time. There should be no difficulty from selvages loading if stripper is used properly. Stripping with a roller is done approximately every fifteen days as the card is ground, according to Mr. Bridges. Mr. Edwards said that vacuum strips do not have the sales value that roller strips have. Mr. Bridges added that in his mill two men strip 540 cards in 480 min.

Use of an oil spray (0.3% on white work, and 0.5% on colored work) was agreed to be helpful in keeping down lint and dust in the card room and in improving the draft.

Better filling bobbins can be built by application of some of the following practices, according to Mr. Brannon: The lay gear is changed so that the filling does not pile, the traverse is reversed, the licker-in is kept clean, and a proper traveler is employed. In making 42s to 45s filling, a 1⅜-in. single-flanged ring is used, along with a ⅝-circle square-point traveler. A No. 11 traveler is used on the 45s, and a No. 12 on the 42s. It is more essential to have the proper lay on soft twist than on hard. A test of 30s yarn made from 1 1/32-in. cotton showed a breaking strength of 73 to 75 lb., as compared with 62 to 65 lb. for the same yarn made from the previous crop of cotton. This yarn was made from double roving, front-roll speed 132 r.p.m., spindle 9,750 r.p.m., twist multiplier 4.50.

Rayon can be plated around cotton-core yarn, according to Mr. Pegram, by running the cotton over the two back rolls and between the first and second. The quill is set in the creel board. The rayon twists around the cotton as it comes through the front roll.

S or Z twist can be distinguished by injecting fugitive dye in the cone or package by means of a special needle.

The rolly appearance of cloth made with a cotton warp and rayon filling is sometimes due to inaccuracy in setting the let-off gears on the loom. This is thought to be because the smoother rayon yarn shows up unevenness of manufacture, even though there is no variation in picks.

Eastern Carolina Division

Causes of and remedies for cloth defects were analyzed in great detail at the Eastern Carolina Division meeting held at West Durham, N. C. J. L. James, of Erwin Cotton Mills Co., chairman, presided. Brief addresses were made by Wm. H. Ruffin, assistant secretary and treasurer of Erwin Cotton Mills Co., and by D. F. Lanier, superintendent of Oxford (N.C.) Cotton Mill. A technical paper on loom upkeep was presented by Thomas Henderson, of Draper Corp. Highlights of the technical forum follow:

Proper way to set a check strap is to see that it is loose in back of stick when stick is to rear, and loose in front of stick when stick is forward, otherwise the shuttle will bind. The check strap is shorter on modern high-speed looms than on the older models. It is advisable to lengthen the slot in the shuttle ¼ in. where a Stafford thread cutter is used, in order to take care of the angular cutting blades. This should reduce jerked-in filling and shuttle bouncing. An abrupt change in either temperature or humidity of weave room will cause trouble in the shuttle box. Most drawbacks come from yarn out of lease on the slasher and from warps not braced out on the tying-in machine. It is difficult to produce even work unless all colored beams on the slasher are out of the same dye set.

Following is an abstract of a paper on winding and warping, by E. C. Johnson, Erwin Cotton Mills Co.:

Special care should be taken to keep all clearers clean in order to prevent waste from getting into the yarn. Frames should be cleaned while doffing. Kinks in yarn are often caused by winder hands allowing thread to become slack while tying a broken end or replacing a bobbin. Spindles on winder frames should be checked for alignment and a small bunch built on large end of cone to prevent kinks and sloughy cones. Defective knotters often cause trouble in winding. Tying knots by hand results in long ends and bad knots. Oily threads are usually caused by dropping the package on the floor in an oily spot. Uneven bands on spinning frames cause unevenness in twist. Splicing should be kept to a minimum in creeling of slubbers. Spinners often cause slugs by dragging the underclearer from the frame carelessly. Dusting over thread guides with a brush causes slugs.

A summary of Mr. Henderson's paper on loom upkeep follows: Use gages for setting of all attachments on looms. In most weave rooms it is advisable to work out standard loom settings covering position of take-up roll, warp stop motion, whip-roll shaft, whip roll, timing of harness, size of shed, timing of pick motion, and power on the pick motion. Lug straps should all be set at the same height on the picker stick. This can be gaged by painting the stick above the strap, so that when a portion of

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unpainted stick shows, the overseer is immediately aware of the fact that the strap is off standard. Shuttles should be charged against the loom rather than the fixer in order to check which looms have high shuttle cost. An accumulation of broken shuttle springs usually indicates that shuttles are not giving the service expected. Fixers should be required to take broken or worn-out shuttles to overseer in order to secure new ones. All shuttles should have date of issue stamped on them. A loom should be thoroughly checked for alignment, power, etc., every time a new shuttle is applied. Loomfixing classes are extremely valuable in weaving, as properly trained operators directly affect the efficiency of any loom. Proper lubrication and a good grade of grease are vital to loom operation.

Knit Pattern Fields

How and why they were originated, and what they are

By J. FREDERICK CAHILL

HOW did the pattern field come to be recognized as, not only an aid and a convenience, but an actual necessity, in the laying out of designs for the purpose of reproducing them in fabrics? What constitutes a pattern field? How is it generated under certain specific conditions? When it is generated and its form determined, how shall it be utilized in order that the selected design will develop properly in the fabric?

Not much is known definitely of the origin of pattern fields, as applied to knitting. However, it can be readily believed that the pattern field is the work of no one man and that its development and application are the result of many men adding original thought to knowledge handed down to them by others who have gone before.

When the loop-wheel spring-needle knitting machine first came into general use, the revolving presser was the only presser in use, as the stationary flat presser is of comparatively recent origin. Old-time knitters not only made their own pressers, but frequently made their own burr wheels as well.

At first, the machine was used in the production of fabrics for underwear, and a clean, even fabric was the object of every good knitter. Hence, a tucked stitch was an imperfection and was not to be tolerated by a man who took pride in his work.

Among the various causes for a tucked stitch in a plain fabric made on a loop-wheel machine, a nick in a revolving presser would be most likely to cause a regular recurrence of tucks and would be most readily recognized and most easily discovered. It is not unlikely that an observant knitter noted a certain uniformity in the distribution of the tucks in the fabric and in their relation to one another. Possibly he had an analytical type of mind and began to speculate on some means for causing the tucks to repeat in straight vertical lines and then in straight diagonal lines.

As methods and formulas for calculating the exact diameters of pressers required to engage a specific number of needles are of recent origin, the old-time knitter determind the correct circumference for a presser by the trial-and-error method. He would run the presser upon the needles just above the leads to check it, and then cut it down in a lathe until the required circumference was obtained.

As one experiment usually leads to another, it is not difficult to imagine an experimenter of the kind described soon recognizing the development of repeats at regular intervals and enlisting the services of other pressers to augment what at first seemed to be a defect. Tucked stitches are surely defects when they occur where they are not wanted, but without them designs in knit fabrics would not be possible. However, it is certain that no knitter deliberately started with a design field and then endeavored to produce a design by compelling the machine and the pressers to conform to the requirements of the design. Rather through years of observation, various possibilities of utilizing what at first seemed to be imperfections and ways of arranging these imperfections symetrically into connected designs were conceived.

Whatever occurs in the matter of lap in the first revolution of the cylinder will occur in exactly the same ratio in every succeeding revolution of a machine with any number of needles and a presser with any number of prints (of course, prints must suit the gage). Also, whatever occurs in the matter of lap in the first revolution of the cylinder, with one presser will occur in exactly the same ratio with any number of pressers of equal diameter; and whatever occurs in the first revolution of the cylinder with one or any number of pressers is the determining factor in the form of the design field for use in that particular case.

If, as has been shown in previous articles, the lap is equal to one or more full pattern divisions in the presser, the design field is a rectangle and the design figures can be connected vertically and lie in vertical design colums. However, if after the number of needles in the cylinder is divided by the number of prints in the presser, a remainder of a few needles more or a few needles less than a full pattern division in the presser is left, the knitter has an interesting situation to cope with.

Loop-wheel, spring-needle machines, with needles cast in leads present the possibility of variation of the number of needles in the cylinder. If fewer needles are needed, the knitter is confronted with the problem of whether the surplus ones can be removed without leaving the remaining needles so widely separated as to hinder the machine's operation. If more needles are needed, a problem arises as to whether the extra ones can be added without crowding the cylinder needles so hopelessly as to interfere with the operation of the machine.

Sometimes, to remedy such a situtation, a print can be added to or deducted from each presser division and the design columns can be redivided, allowing one needle more or one needle less, without altering the design to an appreciable extent. Again, in some cases knitters have resorted to the practice of shaving off the sides of the leads, in order to use more needles, or of altering the mold to make the leads thicker, so that less needles can be used without having them too widely separated.

If either of these courses is followed and a redivision of the number of needles by the number of prints in the presser still shows an awkward remainder, should the knitter be stopped? Should he give it up and admit that he is licked? Not necessarily.

[The discussion of knit pattern fields will be continued in an early issue, with an explanation of how they are generated and how they are used to reproduce a design in loop-wheel spring-needle machines.—*Editor.*]

LOOMFIXERS' MANUAL

COTTON SECTION—*Chapter V—(Continued)*

By IVAR MOBERG

(The first part of Mr. Moberg's discussions of cam-drive calculations appeared in Textile World's December, 1938, issue. —Editor.)

Harness Motions

TO CALCULATE compound crankshaft drive of the type illustrated in Fig. C44, first determine the speed reduction of the auxiliary camshaft by the compound gear, according to the following formula: Driving gear × small intermediate gear ÷ large intermediate gear × compound gear = speed reduction. Thus: 18 × 16 ÷ 24 × 24 = .5

Since this combination reduces the speed exactly one-half, the balance of the calculation can be the same as in the case of bottom-shaft drive. Therefore, divide the throw of the cam by two, and divide into the cam gear this quotient to determine the compound bevel-gear which, in this case, is the change gear. Thus, for 5-, 6-, or 8-throw cams, the compound bevel-gears would be, respectively, 24, 20, and 15 teeth. For a 7-throw cam, the cam gear would have to be changed, since 3.5 will not divide evenly into 60. The nearest compound bevel-gear which, multiplied by one-half the throw of the cams, will give a whole number, is 18. And, 18 × 3.5 = 63-tooth cam gear.

Cam Assembly

The assembling of cams for various weaves in accordance with a cam draft is a stumbling block for many loom-fixers. Nevertheless, it is relatively simple, if properly done. In building up a set of undercams in accordance with a cam draft, proceed as follows:

1. Place the auxiliary camshaft upright in a vise and slip the cam gear on the shaft, making sure the short hub side rests firmly in the lugs of the shoulder collar. New gears sometimes need filing to fit the lugs, but do not overfile them as they must be seated tightly.

2. Ascertain the turning direction of the shaft in the loom and chalk an arrow on the gear indicating this direction.

3. (For purposes of illustration, assume that a 5-harness-twill cam, as shown by the cam draft in Fig. C47, is to be built up.) Place cam No. 5, operating the back harness, so that it will seat into the lug on the long hub side of the cam gear. Reference to the cam draft will indicate that the No. 5 cam is divided into three up, one down, and one up. Reading in the direction opposite to the turning of the cam in the loom, mark off with chalk the starting point of the cam, so that an imaginary treadle roll would roll along the cam surface, on the up-portion of the cam, for three picks (counting pick No. 1), then on the down-portion for one pick, and lastly on up-portion for one pick.

4. Place cam No. 4 on the camshaft. Observe that the starting point of this cam on the cam draft is on the up-portion, at the second pick before the down-portion. The black lugs on the cam hub indicate the position of the treadle roll on the cam surface at each pick. Remember that the direction of reading is opposite to the turning of the cam in the loom.

5. Place No. 3 cam in position on the camshaft. The cam draft calls for this cam to start on that pick on the up-portion which is just before the pick on the down-portion.

6. Place cam No. 2 on the shaft, noting that the cam draft calls for this pick to start on the down-portion. Turn the cam until the starting point is in line with the mark on cam No. 5.

7. Place on the last cam, No. 1. The starting point for this cam is on the pick of up-portion succeeding the pick of down-portion.

For clarity, the starting points on all five cams are marked. If properly assembled, these marks should all be in line. When the warp is drawn in from front to back, these cams will produce the direction of twill indicated on the cam draft; in this case, right hand twill. If the warp is drawn in from back to front, the twill will be reversed. To produce a left-hand twill from a right-hand cam draft, simply read the starting points in the same direction the cams turn in the loom. Reversing the direction of the cams in the loom, by adding one more gear in the cam drive, will also change the direction of the twill in the cloth.

Side cams are built up in much the same manner as undercams, but the picks on these cams are indicated either by keyways or bolt holes, opposite each pick. Thus a 5-throw cam would have either five keyways, or five bolt holes, in the hub. When assembling these cams, place the first one on the camshaft in such a manner that the starting point coincides with the key in the shaft or the bolt in a hole of the cam. No other mark at the starting point is then necessary.

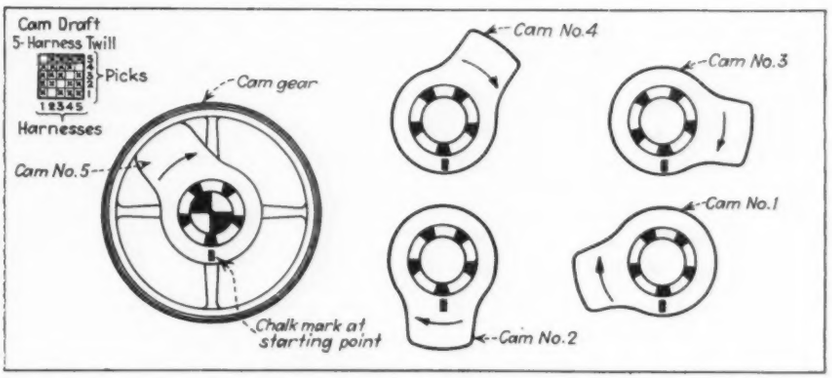


Fig. C47. Cam draft and cams for 5-harness twill. Arrows on cams indicate direction of turning in the loom

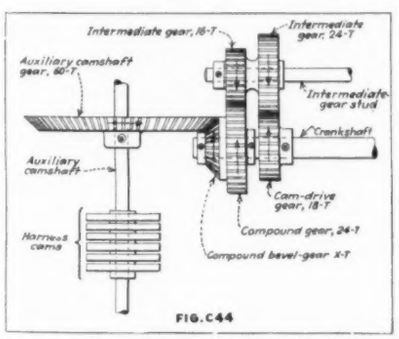


Fig. C44. Gearing of side-cam harness motion driven from crankshaft. (Repeated in reduced size from last issue)

LOOMFIXERS' MANUAL

WOOL SECTION—*Chapter VI*

By BENJAMIN F. HAYES

Loomfixers in every branch of the industry will find much that is useful in this section of the Manual, although it is directed particularly to those in woolen and worsted mills. As previously stated, we recommend that all loomfixers read all sections of the Manual.

Causes of Cut Ends and Picks

ELIMINATION of factors which cause cutting of ends and picks during weaving is a subject which should have the attention of every loomfixer who desires to keep his section operating as efficiently and trouble-free as possible. This chapter proposes to enumerate causes of cutting, and describe appropriate remedies.

Warp ends will be considered first. Faulty reeds often cause cutting of warp yarns. It is best to examine the reed carefully before placing any warp in a loom. In the case of warps composed of fine-count, single yarns the precaution is doubly desirable, because such yarns are naturally less strong than those of a more coarse character or those which have been plied. When reeds which have identations or sharp edges along their wires are noticed, they should be examined closely, for such nicks and cuts, if not removed and prevented from recurring, can do much damage to a warp.

The most frequent causes of such reed damage are shuttles which are thrown against the reed by the picker sticks. Many loomfixers make a practice of adjusting their looms so that shuttles will be thrown in this manner, believing the shuttles move more nearly straight when so thrown. This belief is incorrect. It is, of course, true that a shuttle will travel more nearly straight when thrown toward the reed than it will when thrown away from the reed. But the best and only correct procedure is to have shuttles throwing exactly straight and not either toward or away from the reed.

To test for direction of shuttle, hold the shuttle firmly against the reed and inside box guide, then move the picker stick so that the shuttle tip enters the hole in the picker. If the shuttle shows no movement of any kind, one can assume it is being thrown straight. If there is any movement, it is certain the shuttle is not being thrown straight. Another indication of shuttles which are throwing toward the reed is that the backs of the shuttles will have bars made by continued striking against the reed.

A bent picker spindle may be the cause of untrue shuttle travel. Examine the spindle and make any necessary adjustment. To smooth damaged reeds, use pumice stone, rubbing the reed up and down, covering the warp to protect it during the operation. Of course, it is much better to prevent reeds from becoming damaged than merely to repair them after the damage has occurred.

Loose Raceplates

Also, warp ends are frequently cut by the raceplate. After long years of service, these metal plates not infrequently come loose on one or the other side of the filling-stop-motion slot. This makes the raceplate slightly higher on one side of the slot than on the other.

The high side will often cut warp yarns by trapping them between the edge of the raceplate slot and the bottom of the shuttle. Some loomfixers attempt to remedy this difficulty by moving the reed a very slight amount. On occasion this prevents the shuttle from contacting the warp yarn at the edge of the raceplate slot. At other times it merely causes the cutting of a different warp end. The correct way to eliminate this trouble is to make the raceplate even on both sides of the filling-stop-motion slot. If it appears impossible to get the high side down to the level of the low side, then the low side must be raised a sufficient amount to bring it in level with the high side. This can be accomplished by placing thin pieces of paper between the low side of the plate and the lay, until the proper height is achieved. Care must be taken, when re-tightening the raceplate, to make sure edges of screw holes are not nicked by the screwdriver, thus making sharp places which might in themselves cause cut ends.

As a matter of fact, wise loomfixers will take the precaution of feeling along the raceplate to make sure of its smoothness every time a warp is placed in a loom. Burrs are easily caused in the metal plate; they may result from a weaver accidentally dropping a shuttle on the plate, or from some similar cause. Again, it may be found the temples have cut ridges in the raceplate. All plates should be absolutely smooth every time a warp is put in a loom.

Another action which frequently leads to the cutting of ends by the raceplate is the practice of placing an angle-iron plate between the filling-feeler wires and the cloth. The purpose of such a plate is to prevent tearing of the cloth being woven, by the feeler wires; actually, however, it often results in cutting the raceplate so badly that it must either be covered with cloth or replaced with a new plate. On the other hand, covering of the raceplate with cloth is often found advantageous, especially when fine, tender, or single warp yarns are in use. This practice can also be made a means of increasing yarn visibility, by covering the raceplate with white cloth when the warp being woven is composed of stock-dyed black or blue yarn.

To attach a cloth covering to the raceplate, simply tack one edge of a fabric strip along the face of the lay, and place the other edge of the cloth so that it will be held in position by the reed.

Faulty Heddles

Faulty heddles are sometimes guilty of cutting warp ends; hence, it is well to inspect the heddles when trouble of this type is encountered. Sometimes, also, heddle bars which have not been hooked up at exactly the right point will cause cutting (in the case of open-weave fabrics, streaky cloth may also result). Usually, heddle bars are levelled by eye, but it is much better to have marks made on the reed cap at the proper points and make sure of correct alignment by hooking up the bars in conformity with these marks.

(*A discussion of causes of cut filling yarns will appear in an early issue.—Editor.*)

STAPLE COTTON FABRICS

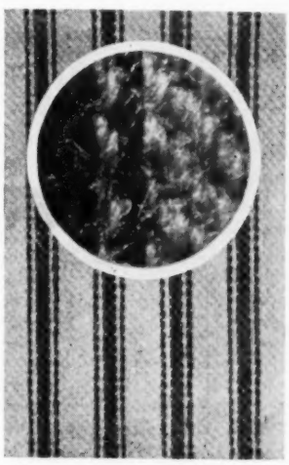
By JOHN HOYE
Fabric Technician with W. Harris Thurston, New York

This thirty-seventh installment of Mr. Hoye's series of articles on staple cotton fabrics—which began in the January, 1936, issue—continues the discussion of ticking.

WOVEN TWILL TICKING

WOVEN twill ticking, often referred to as A.C.A. type, is the most widely used ticking. Except in the cheaper qualities, this classification consists of strong, closely-woven, warp-face twills characterized by white and dark-blue indigo- or sulphur-dyed warp stripes. Usually the weave is either a 3-harness drill or a 4-harness warp twill. While in a staple stripe pattern the standard coloring is blue and white, in some stripe patterns other colors, such as brown, and red and blue combinations, are used. Usually gray or unbleached yarn is used for the white warp stripes and the filling; however bleached yarns are used in some qualities of ticking which are referred to as bleached-ground tickings.

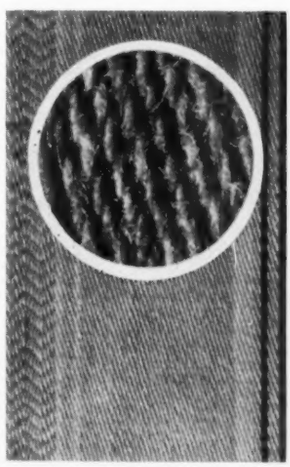
Herringbone-twill-weave ticking, sometimes referred to as plumber's ticking, and plain-weave ticking (used as straw ticking) are variations from the standard twill-weave ticking. Variations from the standard stripe patterns are wide color stripes and narrow color stripes.



Woven twill ticking, 32 in., 80x72, 8.00 oz., blue and white stripe feather-proof

Woven twill ticking is made in widths of 28½, 30, 31, 32, 36, and 60 in., and in weights of from 3.25 to 8 oz. based on 32-in. width. The 32-in., 8-oz. ticking, which usually is hair- and feather-proof, is considered the best quality. The 32-in., 6.25-oz. ticking can be used for certain kinds of filling feathers without quills. Lighter weights are not feather-proof, and the cheapest qualities are used as straw ticking. Twill ticking is quoted by width and weight—thread count usually is not mentioned.

Warp yarns: 12s to 16s. *Filling yarns:* 12s to 24s.
Examples of woven twill ticking:
60 in. 80x72 15.00 oz. 4-harness twill
36 in. 70x52 7.00 oz. 3-harness twill
32 in. 80x60 3.00 yd. 4-harness twill
32 in. 96x74 8.00 oz. 4-harness herringbone twill—bleached ground
32 in. 80x72 7.00 oz. 4-harness herringbone twill—bleached ground
31 in. 90x64 2.80 yd. 4-harness twill—awning stripe effect
32 in. 96x64 6.00 oz. 4-harness herringbone twill
32 in. 72x54 2.60 yd. 3-harness twill—narrow stripes
32 in. 64x44 4.00 yd. twill—straw ticking
32 in. 48x36 5.00 yd. twill—straw ticking
Example of plain-weave ticking:
30 in. 32x30 6.15 yd. straw ticking



Woven sateen ticking, 32 in., 104x64, 8.00 oz., colored yarn, feather-proof

WOVEN SATEEN TICKING

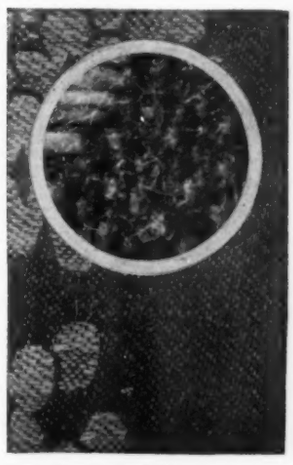
Woven sateen ticking usually is more expensive than the blue-and-white-striped twill ticking. It is a closely-woven, smooth-face fabric, usually made in designs of various colored stripes and woven with a 5-harness warp-satin weave. Dyed yarns are used for the warp, and, as a rule, bleached yarns are used for the filling. When a single-color warp is used, the long float of the yarn produces a solid-color effect on the face side of the fabric.

Warp yarns: 12s to 30s. *Filling yarns:* 16s to 24s.
Examples of woven sateen ticking:
32 in. 96x66 8.00 oz.
32 in. 104x64 8.00 oz.
32 in. 86x44 2.85 yd.
32 in. 100x64 3.25 yd.

JACQUARD DAMASK TICKING

Jacquard damask ticking, which generally is more expensive than woven sateen ticking, usually is imported from Belgium; however some is manufactured in this country. It is made in elaborate woven designs, usually damask effects in all-over patterns or in suitable panel designs to fit the size of the mattress. The designs are woven on a jacquard loom, using warp and filling satin-weave floats. Warp and filling yarns are of contrasting colors. Some damasks are made with rayon filling, and, while not so durable as all-cotton fabrics, they have a luster which adds greatly to their appearance. Damask ticking is used for better-quality mattresses.

Warp yarns: 14s to 18s. *Filling yarns:* 14s to 18s cotton and 300 den. rayon.
Examples of jacquard damask ticking—domestic:
56 in. 72x38 2.00 yd.
56 in. 84x48 1.62 yd.—cotton warp and rayon filling
Examples of jacquard damask ticking—imported:
56 in. 84x44 1.50 yd.
64 in. 90x48 1.32 yd.



Jacquard damask ticking, 64 in., 90x48, 1.32 yd., colored warp and white filling

NEW MACHINERY AND PROCESSES

Improved Single-Unit Full-Fashioned Hosiery Machine

Several important improvements in the Type HSU, Schubert & Salzer, single-unit full-fashioned hosiery machine have been announced by Alfred Hofmann, Inc., West New York, N. J. One of these is an automatic welt turner, displayed initially at the Knitting Arts Exhibition, held last April; another is the incorporation more recently of an adjustable-speed motor drive.

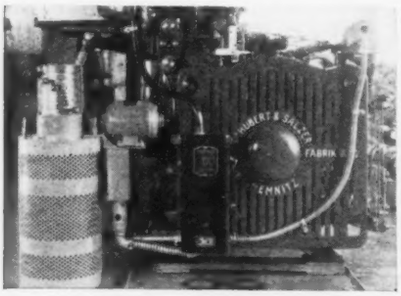
First introduced in 1935, the machine has one-piece needle bars and a simple mechanism for varying the width of the instep to meet any fashion demand. Since it is not necessary to employ heelers in conjunction with this machine, there is no possibility of having mismatching in the heel. Other features of the machine include short needles, large cams, hook knock-over bits, short carriers, main carriers with replaceable tubes, 14½-in. heads. Three-carrier, picot, pointed heel, and lace attachment with a 40 to 42 needle range, are standard. A double lace attachment with a 72 needle range can also be furnished. Operating speed of the machine is 73 to 75 courses per minute, depending upon the yarn employed.

The Polyspeed motor drive, shown in Fig. 1, was developed by Crocker-Wheeler Electric Mfg. Co., Ampere, N. J. (TEXTILE WORLD, March, 1938.) The drive consists essentially of an a-c., adjustable-speed motor, a speed controller which is constructed without moving or sliding contacts of any kind, a magnetic starter combined with fused disconnect switch, a shipper rod switch, and speed selector switch-box. This drive is said to furnish very high starting torque at all required speeds, and is provided with six separate speeds, which in themselves are adjustable. The speed-adjustment unit is mounted on top of the speed controller, and is easily accessible.

The automatic welt turner turns the welts with a loop on every needle, so that the appearance of the welts is exactly the same as if they had been turned manually. The device is bulit into the machine without encumbering its operation, and with free accessibility and view of all sections retained. The welt bar in each section can be disengaged individually, rendering it possible to stop operation of any particular section at any desired point. Needles can be replaced while making the welt. No auxiliary motor is necessary for the operation of this device. Any length of welt can be made, the shortest on a 51-gage machine being 2 in. Since the welts are turned automatically, 28 section machines are now furnished, so that the maximum of production will be obtained. The operating method is shown in Figs. 2 to 6.

Automatic Filling Winder

One of the more interesting of the new types of equipment shown at the textile machinery exhibition, Manchester, England, is the first model of the No. 99 automatic filling winder developed by Universal Winding Co.,



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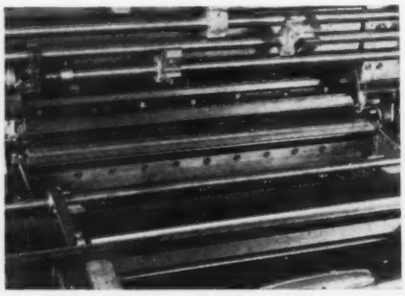

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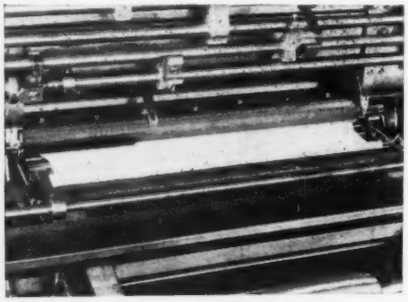

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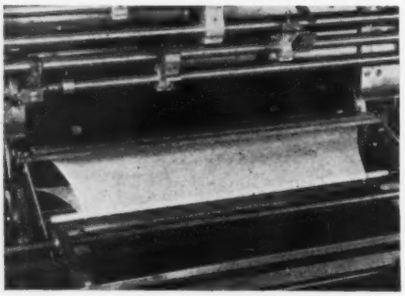

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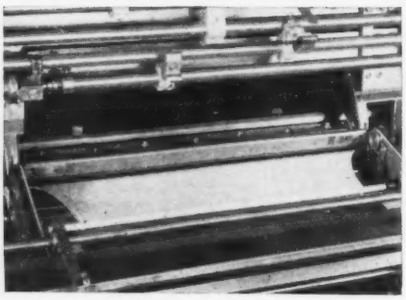

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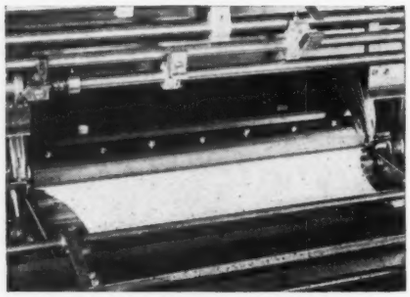

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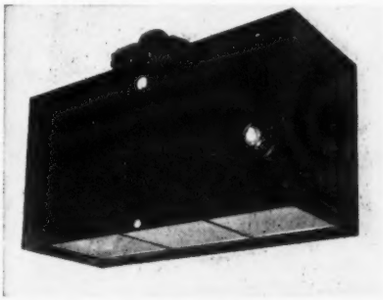
1. Polyspeed motor drive on Schubert & Salzer, single-unit, full-fashioned hosiery machine. 2. Previous set of stockings has been pressed off, a loose course is made just as if the welts were to be turned by hand; the welt bars, which until now remained in their inoperative position underneath the machine table cover, simultaneously move over gliding rails towards the needle bars so that the welt-bar hooks engage the sinker loops. 3. Welt hooks have engaged sinker loops; knitting of the welt is begun; while this is taking place, the previously finished set of stockings is removed; during the knitting of the first half of the welt, the welt rods are placed into their proper position by means of a single lever while the machine is running and all rods at the same time take up the tension of all sections. 4. When the welt has reached the desired length, the fabric tension, which to this point was controlled through the welt bar, is taken up by the welt rods; the machine now continues knitting the welt, and the welt bars advance toward the needles. 5. The welt is automatically turned, and the welt bars subsequently return to their inoperative position. 6. Welt is completed, and the knitting of the main fabric of the stocking has commenced; welt rods can now be placed in position for the next set while knitting of the leg is taking place.

Providence, R. I. The outstanding feature of this machine is that when a bobbin is filled it is automatically ejected from the machine and a new bobbin takes its place, the winding resuming without help from the operator. Universal Winding Co. reports that experimental work on the machine has been completed and that a unit is now being installed in a New England mill for the purpose of making mill tests.

Air-Cooled Color-Matching Lamp

Among recently announced products of Macbeth Daylighting Co., Inc., 233 West 17th St., New York, is a specially designed air-cooled color-matching lamp, complete with a blower which removes excess heat from the working area. The lamp, known as Model BKX83, is said to provide 400 foot-candles of completely diffused north-sky daylight, and/or 250 foot-candles of diffused horizon-sunlight.

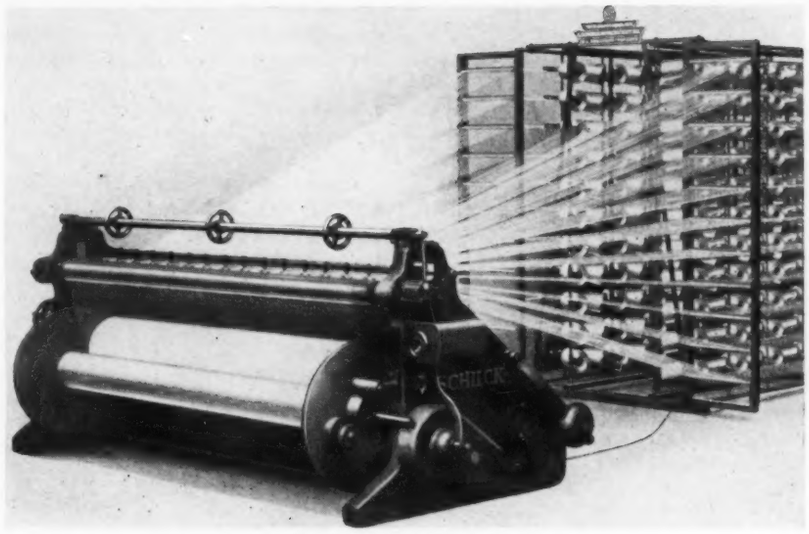


Air-Cooled Color-Matching Lamp (Macbeth)

Another recent announcement of the company is its Artday No. 36 fluorescent lamp. This unit, which combines a polished aluminum reflector and 36 in. fluorescent tube, is available for 220-volt, 60-cycle, a-c. current.

Warping and Beaming Machines

The Schlick high-speed full-width beaming machine has been announced by Robert Reiner, Inc., Weehawken, N. J. The machine, which has a direct beam drive, is of a universal construction and allows warping of cotton, filament rayon, wool, and staple fiber into either hard or soft beams. Construction is compact and encased, and all rotating parts are deeply bedded to eliminate oscillation and noise. The beam can be released and removed in a few seconds by turning a handwheel to operate the pair of rollers on the beam. Uniformly tensioned winding is insured by a press roller with equillibrated suspension and adjustable pressure. Draw-off speeds of from 50 to 650 yd. per min. can be effected by a special motor in connection with quick-change drive and electric fine adjuster. An automatic device maintains constant warping speed. The beam can be stopped almost immediately by two powerful shoe brakes. Clear and visible thread guiding increases production. Differences in tension between large and small cones are equalized by an automatic yarn tensioning differential. The machine has a yardage clock and can be set to stop automatically for a desired warp length.

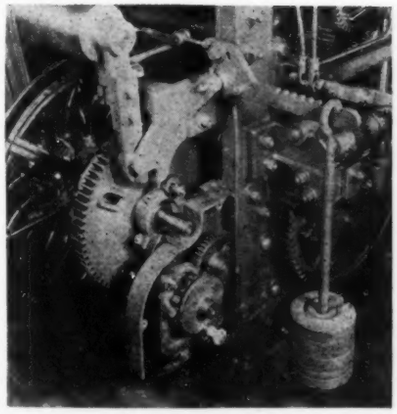


Full Width Beamer (Reiner)

Three other machines of the same make, announced by this company, are: (1) a high-speed section warper with special fine-adjustment reed, and warp section holders which permit warping up to 4,400 yd.; (2) a high-speed cone warper with special slide gage for accurate lot setting, and centrol cone-pitch adjustment; and (3) a high-production cone warper with a yardage indicator that prevents differences in lengths between various warps by stopping and locking the machine at the set yardage.

Automatic Let-Off Motion

An automatic let-off motion for all W-type woolen and worsted looms has been announced by Crompton & Knowles Loom Works, Worcester, Mass. The new motion is self-adjusting, with no change in the weight necessary from the beginning to the end of a warp, and regular loom beams may be used by simply removing the old friction head from one end of the beam and substituting a large gear. Advantages cited are that use of this type let-off motion eliminates thick and thin places and that, since no friction bands or chains are required, all difficulties related to them disappear.



Automatic Let-Off Motion (Crompton & Knowles)

Rayon Warp Sizer

Two outstanding features of a new rayon warp sizing machine recently introduced by Charles B. Johnson, Paterson, N. J., are a stretch indicator, which shows the percentage of stretch occurring at all times while the machine is in operation, and a "fingertip" stretch control knob, by means of which stretch can be regulated to within ¼%.

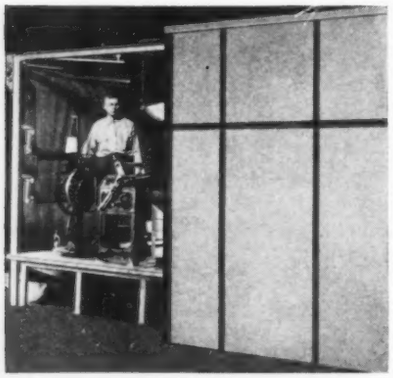
Size boxes of the new sizers are equipped with automatic temperature and liquid-level controls. Each of the seven 30-in. stainless-steel drying cylinders is furnished with a vapor tension thermometer, which registers the temperature within the cylinder. A PIV drive between the quetsch and the first drying cylinder permits regulation of stretch. There is also a PIV drive which speeds up or slows

Head End of Rayon Warp Sizer (Johnson)

down the drying cylinders to conform with the speed of the draw rolls, thus making possible control of stretch at this point.

A stretch indicator, connected between the lead-in roll and the delivery roll, makes it possible to measure stretch on the sizer and to have it visually indicated as the warp passes through the machine. Simply turning the control knob is all that is necessary to obtain instant adjustment of stretch to the exact amount desired.

Machines of this type now in operation are said to be running at between 60 and 80 yd. per min.



Fabric conditioner (Hunter and Bridges-Wilson)

Cloth Conditioner

A cloth conditioner, which restores natural moisture to cloth after finishing, has been developed by James Hunter Machine Co., North Adams, Mass., and Bridges-Wilson Corp., Boston, and is identified as Brilsonair. A machine occupying less than 35 ft. of floor space will condition 30 yd. of worsted fabrics per minute. The conditioner comes complete with air conditioning unit, necessary motors, fans, heating coils, housing and control instruments. It is asserted that the machine has the following advantages: evenness of regain at high speeds, reduction of off-shade goods, flexibility and uniformity in conditioning fabrics.

Roving Can

Sonoco Products Co., Hartsville, S. C. has developed a light and strong, low-cost roving can. A one-piece cold-drawn steel bottom rim of extra thickness is riveted to a 6-in. steel kick band, and to the bottom of the can. A one-piece, cold-drawn steel rolled

Roving Can (Sonoco)

top rim is closely pressed against the inside of the laminated-board barrel to facilitate ease of handling.

Stock Dyeing Machine

Charles E. T. Scribner, 11 Kilgore Ave., West Medford, Mass., announces a new and improved design of stainless steel stock dyeing machine of 250 to 600 lb. capacity. Attached to a false perforated bottom is a central discharge pipe through which dye liquor is delivered above the stock and passes down through it by pressure. The hinged cover can be swung into a vertical position, for loading

Stock Dyeing Machine (Scribner)

and unloading, by the turning of a handwheel, as it is counterbalanced. The main kier, which is supported by a cast-iron base, is ⅜ in. thick 18-8 stainless steel with polished surfaces. The outer part of the machine is covered with a No. 20 stainless steel protecting case.

Useful Accessories for Textile Mills

Electric Hoist. Yale & Towne Mfg. Co., 4530 Tacony Ave., Philadelphia, is introducing an air-cooled electric hoist said to overcome the problem of excess brake heat. Also featured is the fact that the entire train of gears and the load brake assembly operate in an oil bath in an oil-tight housing, the reservoir having sufficient capacity for approximately six months' service.

Pillow Blocks. Stephens-Adamson Mfg. Co., Aurora, Ill., has recently introduced a line of permanently sealed, self-aligning, ball-bearing pillow blocks. Other features cited are Alemite hydraulic lubrication fittings, provisions for misalignment, one-piece cast pillow block, etc.

Humidifier. Spray Engineering Co., Somerville, Mass., has recently announced a compact, easy-to-install humidifier designed for stock rooms, storage rooms, laboratories, etc., up to 4,000 cu.ft. Operation of the system is said to be entirely automatic, and it is claimed it will maintain relative humidity constant within 1% over a wide range of operating conditions.

pH Slide Comparator. W. A. Taylor & Co., Baltimore, Md., has introduced a new slide comparator for the colorimetric determination of pH, chlorine, and phosphates. The device consists of a slide and a base—each slide contains nine color standards alternating with ampoules of distilled water; the base contains vials of indicator solution, pipettes, test tubes, and a piece of etched glass.

Indicating Controller. C. J. Tagliabue Mfg. Co., Park & Nostrand Aves., Brooklyn, N. Y., has developed direct-set indicating controllers, Model No. 9-TIC for temperature and Model No. 9-PIC for pressure. The instruments are said to be ruggedly designed, and are contained in weatherproof aluminum cases. Available in On-Off and Throttling types, the instruments have interchangeable calibrated tube systems, safety link for range protection, pointer-arm brackets with bearings at each end, etc.

Lighting Canopies. Fostoria Pressed Steel Corp., Fostoria, Ohio, has introduced a group of canopy lighting units

for fluorescent-type lamps. The series comprises eight models, in three different sizes, and is available for either 110- or 220-volt current.

Water-Tank Heater. Rockwood Sprinkler Co., Worcester, Mass., has designed a steam tank heater for service on sprinkler tanks, as a safeguard against freeze-ups. Advantages of the heater are that it makes certain freezing will not rob a plant of fire protection facilities, eliminates costly repair bills, and prevents accumulation of ice either in or on tanks.

Lighting Unit. Benjamin Electric Mfg. Co., Des Plaines, Ill., has introduced a line of fluorescent lamp diffuser units for use with the white fluorescent color-discrimination lamps recently made available. The reflectors are made of polished Alzak aluminum, and auxiliaries necessary for operation of the lamps on standard lighting lines are built into the units.

Sound-Insulated Pillow Blocks. SKF Industries, Inc., Front St. & Erie Ave., Philadelphia, is introducing a pillow block unit which comprises a self-locking bearing and pressed-steel housing, both surrounded with an elastic material having special sound-absorbing characteristics. The elastic material is specially treated to make it impervious to oil and grease.

NEW CHEMICAL PRODUCTS

General Dyes

General Dyestuff Corp. announces the following new products: Celliton Fast Dark Brown B, an acetate dye which yields deep brown shades of very good fastness to light on acetate rayon; shades obtained are considerably darker and more covered than from Celliton Fast Brown BT. Celliton Fast Dark Green B, an acetate dye which yields considerably more covered shades than Celliton Fast Green FFG or 5B; it is recommended chiefly for production of the popular bottle green shades of good fastness to light, rubbing, hot pressing, brightening, acid, and alkali. Algosol Brown IVD, a leuco vat dye which yields covered, violet-toned brown shades possessing good to very good fastness to light. Algosol Brilliant Violet 14R, a leuco vat dye which yields clear, reddish violet shades of good to all-round fastness properties on vegetable fibers. Naphtamine Brown BTL, a direct color which is particularly suitable for the dyeing of hosiery and other knit goods, mixed fabrics of rayon and cotton, and mixed yarns of cotton and spun rayon.

Flame-Proofing Compound

Abopon Special, a new flame-proofing compound, has been announced recently by Glyco Products Co., Inc., 148 Lafayette St., New York. It is stated that application of this product practically eliminates after-glow on such flammable materials as plush, velvet, cotton-batting, etc. Although the material is not water proof, it dissolves but slowly when exposed to rain. Where permanent waterproofness is necessary, Abopon Special is applied to the material to be flame-proofed and allowed to dry. Then the material is coated with a waterproofing compound, such as lacquer or varnish, which adheres firmly to the flame-proof coating. Thus the flame-proofing is protected against rain, etc. When a flame is applied to the treated material, the thin lacquer or varnish burns off quickly, producing a flash flame that vanishes quickly, while the material underneath does not catch fire.

Antioxidant

A new soap antioxidant, known as Sopanox, has been announced recently by Monsanto Chemical Co., Rubber Service Laboratories Division, Akron, Ohio. Developed originally for use by the soap and allied industries, this product is now being offered to the textile industry. Added in small percentages to solutions of soap, sulphonated oils, and similar compounds, Sopanox is said to retard oxidation, and the resulting rancidity, discoloration, and other adverse qualities. It is stated that the product imparts no odor or color to soaps, will not affect their efficiencies in any degree, and can be employed with equal success in soda or potash soaps.

NEW PUBLICATIONS

Directory of North Carolina

INDUSTRIAL DIRECTORY OF NORTH CAROLINA; Published by Department of Conservation and Development, State of North Carolina; 932 pages; $7.50.

This is an outstanding example of the new tendency on the part of States to publicize and interpret their industrial development. The volume contains a State-wide list of manufacturers classified according to types of industries; a similarly treated listing of industries by counties; a listing of all industries and commercial houses by towns and cities; and statistical data and summaries for the counties and the State.

It is interesting to note that out of a total of 229,534 wage earners employed by all the industries of North Carolina, 156,164 are employed by the various branches of the textile industry. Of the total annual wages of $152,037,469 paid by all industry, the textile industry paid $109,965,558.

History of Labor Organization in U. S.

THE LABOR MOVEMENT IN AMERICA, by Majorie R. Clark and S. Fanny Simon; W. W. Norton & Co., Inc., New York; Price $2.00.

This very fine review of the labor movement, from the formation of the first union in America in the year 1792 through its fluctuating cycles due to war, to depression, to prosperity and to political trends, is written in an exceedingly easy, interesting manner.

From the beginning of industry in this country through years of "industrial barons" and the speed-up system, the authors show the aims of organized labor and the need for organization on the part of the working people. They probe the methods of strike-breaking; employer means of combating unionization; and political administrations which fostered or fought development of the labor movement.

It is really a book worth reading. Although it is entirely sympathetic to the labor point of view, it might be wise for the industrial executive to read the story of "the other side" which is told in such a calm and dispassionate way.

Planning Toward Full Employment

TOWARD FULL EMPLOYMENT by Henry S. Dennison, Lincoln Filene, Ralph E. Flanders, Morris E. Leeds. Whittlesey House, New York. $2.50.

This interesting book, written by four of the country's leading industrialists, points out that a Utopian condition can be achieved through planned economics. The book was written through a sense of responsibility on the part of the authors, and through their belief that the group

of business men who influence industry should accept a large share of responsibility for the manner in which it functions.

With Mr. Leeds taking up "The Provision of Useful Employment" (Part I); Mr. Flanders going into "The Requirements for Financial Stability—Fiscal Policy and the Business Cycle" (Part II); and Mr. Dennison showing the way toward gainful employment and financial stability through a suggested program of a "Tax System That Fits" (Part III), the book has been welded into an integral whole which is a sound recipe for ideal governing instead of theoretical experimentation.

The book emphasizes through charts and statistics that a stable or gently rising price level is a long-time result and not an immediately operable cause of stability. It proves that the present-day depression trouble is a fear-disease which prevents industry from building up its activity and shouldering the responsibility for employment and spending, that governmental pump-priming has been of a non-constructive nature. It says "business has something to learn; government has much."

This book would make interesting and instructive reading for industrialists, industrial employees, and the thinking-type of man in any sort of business.

Cotton Handbook

ANNUAL COTTON HANDBOOK; Comtelburo, Ltd., London and New York; Price, $1.00.

This, the 68th annual issue, includes daily cable records of American, East Indian and Egyptian crops, together with Liverpool, Brazilian, Continental, and other statistics.

NEWS OF SUPPLIERS

E. I. du Pont de Nemours & Co. demonstrated the properties of Zelan, the durable water-repellant finish announced recently, at a luncheon given on Dec. 13, in New York. Dr. Samuel Lenher, technical manager of the Fine Chemicals Division of the du Pont company stated that this product will give fabrics a water-repellant finish which will last through repeated laundering and dry-cleaning. George A. Slowinske demonstrated the repellency of Zelan-treated fabrics to water, ink, shoe polish, etc. Hugh Lavery, advertising manager of the Fine Chemicals Division, said that labels have been designed to identify fabrics and garments which have been given the Zelan treatment and use of these labels by the finisher will require testing and approval of the effectiveness and durability of the finish by the Better Fabrics Testing Bureau of the National Dry Goods Association.

James Talcott, Inc., New York, has distributed the 1939 issue of the Factor's Almanac. This is the fifth year of publication and, as was true of its predecessors, represents a most interesting contribution.

E. H. Jacobs Mfg. Co., Danielson, Conn., has promoted S. B. Henderson, of Greer, S. C., from southern service manager to southern sales manager. Dan B. Griffin, of Greensboro, becomes southern service manager. The company celebrated its 70th anniversary on Jan. 1. The "Verybest" line of lug straps and other loom supplies was originated by Edward H. Jacobs in 1869. W. Irving Bullard is president and his son, E. J. Bullard, is treasurer. The company has two

Lewis B. Swift, newly elected president of Taylor Instrument Cos., Rochester, N. Y.

subsidiaries, the Williamsville Buff Mfg. Co., Danielson, and E. H. Jacobs Mfg. Corp., Charlotte, N. C. The former makes buffing wheels, and the latter, picker sticks, skewers and other hard wood products.

Allis-Chalmers Mfg. Co., Milwaukee, Wis., has established a new branch office and warehouse at Newark, N. J., in Industrial Office Bldg., 1060 Broad St., with C. A. Pihl as manager.

Reeves Pulley Co., Columbus, Ind., has moved its Atlanta office from the Healey Bldg. to Room 311, Volunteer Bldg. W. C. Erwin is in charge.

U. S. Industrial Chemicals, Inc., New York, has been formed as a subsidiary by U. S. Industrial Alcohol Co. to carry on all the parent company's activities in manufacturing and selling except resins. The name reflects the wider scope of the company's products.

Arthur D. Little, Inc., Cambridge, Mass., has discontinued routine testing and chemical analysis, such requests to be referred to Skinner & Sherman, Boston. The change reflects the engagement of the firm's organization on research and development work.

Armstrong Cork Co., Lancaster, Pa., has appointed Keith Pawlison as treasurer and a director. He is succeeded as assistant treasurer by W. M. Self.

Standard Mill Supply Co., Pawtucket, R. I., has been appointed by Lorraine Mfg. Co. to sell the machinery and equipment at their Westerly, R. I., plant.

R. C. Jefferson, New York, N. Y., has opened an office at 75 West St., to offer a consulting service on all problems of textile finishing from new plant layouts to improvements in existing processes. Mr. Jefferson was recently with the Rodney Hunt Machine Co.

G. H. Tennant Co., Minneapolis, Minn., has begun the marketing on a national scale of an improved toilet seat, taken over from the Sperzel Modern Seat Co., which previously had not been marketed outside of Minneapolis.

American Leather Belting Association at recent annual meeting in New York, elected Fred E. Barth of Graton & Knight Co., Worcester, Mass., as president of the ensuing year.

Power Transmission Club of Chicago has engaged Dean Rogers, acting director of Lewis Institute, to conduct an engineering class on power transmission, to be held once a month. The subject matter for this class is a series of 21 lessons covering all phases of power transmission from the source of power to the equipping of entire plants.

Arnold, Hoffman & Co., with headquarters in Providence, R. I. and branch offices in major sections of the textile industry, have recently established a warehouse in Charlotte, N. C. Stephen J. Hawes has been added to the sales staff of the Charlotte office.

Hercules Powder Co., Wilmington, Del., announces the first step in an expansion program for the manufacture of ethyl cellulose. Work will begin at once on the construction of a new ethyl-cellulose plant at Hopewell. Ethyl cellulose, in the opinion of competent observers, is one of the most promising of the new materials. It is used in lacquers, varnishes, plastics synthetic finishes, textiles, films, paper, and many other products.

United States Rubber Products, Inc., New York, announces that W. A. Tipton, manager of packing sales of the Mechanical Goods Division, has been appointed a director of the Rubber Division of the Mechanical Packing Association at a recently held meeting of the association's board of directors.

United States Gypsum Co., Chicago, Ill., has established an Industrial Fellowship in the Mellon Institute, Pittsburgh, Pa. to conduct fundamental research on various products manufactured by the donor company, with the objective of developing new processes and technics which will have broad application in the field of building materials. Dr. H. E. Simpson, who has been appointed to the incumbency of the Fellowship, has been a member of Mellon Institute since 1936.

Air Conditioning Utilities moved its Boston office on Dec. 1, from the old address at 110 Arlington St. to 436 Statler Building. The New York and Boston activities are under the direction of Harry W. Fiedler, factory representative for Julien P. Fries & Sons Division of Bendix Aviation Corp., Baltimore, Md.

Acheson Industries, Inc., New York, has announced appointment of James H. Gamberton to the staff of R. Szymanowitz, technical director. Mr. Gamberton will supervise engineering tests involving new applications of the "Dag" products of the company's affiliate, Acheson Colloids Corporation.

Worthington Pump & Machinery Corp. has transferred Edward Watson, refrigeration and air conditioning engineer, from the home office at Harrison, N. J., to the Atlanta District sales office. Mr. Watson will function in North and South Carolina, Georgia, Florida and Alabama. His headquarters will be at 133 Carnegie Way in Atlanta.

Worthington Pump & Machinery Corp., Harrison, N. J., has appointed Walter B. Strong as assistant general sales manager. Formerly manager of the export division, Mr. Strong will continue general supervision of export sales, but will also be identified with certain phases of domestic sales work.

Burndy Engineering Co., New York, announces the appointment of P. Lynn Shawley as New York district manager for Burndy.

Carrier Corp., Syracuse, N. Y., has announced a giant igloo to be built to house its exhibit at New York World's Fair 1939, 70 ft. high. The building will be air-conditioned and nearby will be two 80-ft. thermometers, one registering the temperature within the structure, the other the outdoor temperature.

1937 Textile Machinery Product 56% Above 1935

The 1937 census of textile machinery and accessories discloses that year to have been an excellent one with value of products up 56% over 1935 and up 78% over 1933. As compared with 1935 most individual items registered gains. Even in circular knitting machines where number of units declined, value increased. Numbers of specific machines produced in 1937 are as follows: 510 pickers, 1,924 cards, 15,600 spinning frames, 2,184 doublers and twisters, 76,893 winders, 649 warpers and slashers, and 1,846 circular hosiery machines. Looms are given only in value—$11,306,420 including braiders, embroidery and rope machines. Summary follows:

SUMMARY FOR TEXTILE MACHINERY AND PARTS INDUSTRY: 1937, 1935, and 1933

	1937	1935	1933	Percent of increase	
				1935-1937	1933-1937
Number of establishments	356	349	314	2.0	13.4
Wage earners (average for the year) [1]	25,382	19,072	18,576	33.1	36.6
Wages [2]	$33,187,362	$21,245,578	$18,737,260	56.2	77.1
Cost of materials, supplies, fuel, and purchased electric energy [2]	$35,581,376	$23,131,415	$18,377,880	53.8	93.6
Value of products [2]	$107,329,808	$68,846,269	$60,323,267	55.9	77.9
Value added by manufacture [3]	$71,748,432	$45,714,854	$41,945,387	56.9	71.1

[1] Not including salaried officers and employees. Data for such officers and employees will be included in a later report. The item for wage earners is an average of the numbers reported for the several months of the year. In calculating it, equal weight must be given to full-time and part-time wage earners (not reported separately by the manufacturers), and for this reason it exceeds the number that would have been required to perform the work done in the industry if all wage earners had been continuously employed throughout the year. The quotient obtained by dividing the amount of wages by the average number of wage earners cannot, therefore, be accepted as representing the average wage received by full-time wage earners. In making comparisons between the figures for 1937 and those for earlier years, the possibility that the proportion of part-time employment varied from year to year should be taken into account.

[2] Profits or losses cannot be calculated from the Census figures because no data are collected for certain expense items, such as interest, rent, depreciation, taxes, insurance, and advertising.

[3] Value of products less cost of materials, supplies, fuel, and purchased electric energy.

Engineering Foundation, New York, has reelected as its chairman Frank Malcolm Farmer, vice-president and chief engineer of the Electrical Testing Laboratories, New York. George E. Beggs, professor of civil engineering in Princeton University, was elected vice-chairman. J. H. R. Arms will continue as secretary and Otis E. Hovey as director. The executive committee is headed by Mr. Farmer. Other members are A. L. J. Queneau, metallurgist of United States Steel Corp., New York; Prof. W. I. Slichter of Columbia University, K. H. Condit of the National Industrial Conference Board, New York, and Professor Beggs.

Iron & Steel Products, Inc., Chicago, dealers, have appointed Lou F. Kinderman as district sales representative for their Cleveland-Pittsburgh territory, with office in Warren, Ohio.

Foote Bros. Gear & Machine Corp., has appointed Murray-Baker-Frederick Co., Shreveport, La., as district representative for Northern Louisiana and Southern Arkansas; and Lloyd C. Taylor, Box 113, Richmond, Va., as district representative for IXL gear and reducer products in Virginia.

Hinde & Dauch Paper Co. will begin at once to erect a modern corrugated-box factory on West Chicago Ave., Detroit, Mich., to be 510 x 200 ft. Charles U. Harvey, who has represented Hinde & Dauch Paper Co. in Detroit for over 15 years, will be in charge of the new operation as district manager for Michigan. In 1938 the company has been celebrating its golden anniversary. The new plant will join the chain of factories located in 14 other cities.

TEXTILE WORLD ANALYST

TEXTILE WORLD'S index of textile mill activity reflects the sharp increase in operations in the latter part of 1938 as contrasted to the equally sharp decrease in the last months of 1937. Final figures for November 1938 showed an activity 37% above November 1937. Activity during the first 11 months of 1938 was 22% below the first 11 months of 1937, but only 2% below the corresponding period of a "normal" year (1924-31 average). Preliminary data for December indicate that the improvement trend continued, and that total 1938 activity was approximately 18% below 1937.

TEXTILE WORLD'S compilation of manufacturing margins on carded cotton fabrics and yarns for December showed a further decline for the former and a further advance for the latter.

TEXTILE WORLD'S price index numbers showed mixed trends in the cotton series reflecting the situation noted above; unchanged levels in rayon and silk; and slight easing in wool tops and yarns.

Textile World's Price Index Numbers

STARTING with January, 1936, TEXTILE WORLD has revised its price index numbers to a 1923–25 base, to correspond with current statistical practices. Figures on cotton manufactures, Aug. 1, 1933 to Jan. 6, 1936 include processing tax.

	Cotton Index Numbers				Wool Index Numbers				Silk	Rayon
Date	Cotton	Yarns	Gray	Colored	Wool	Tops	Yarns	Cloth	Index Raw Silk	Index
1923-25	100	100	100	100	100	100	100	100	100	100
1930 ave.	50	61	61	72	58	61	72	90	109	46
1931 ave.	32	68	46	59	46	49	59	71	32	32
1932 ave.	24	37	37	60	36	40	52	57	21	28
1933 ave.	39	56	55	50	53	59	62	80	21	26
1934 ave.	61	67	70	62	63	70	75	91	17	25
1935 ave.	60	68	67	69	56	58	70	88	22	24
1936 ave.	45	63	63	68	72	78	76	93	23	25
June 1936	44	58	57	65	67	75	76	90	20	25
July 1936	48	61	61	70	69	75	75	90	22	26
Aug. 1936	45	62	63	70	70	75	74	90	23	26
Sept. 1936	45	62	63	70	70	75	74	90	22	26
Oct. 1936	45	64	67	71	71	75	74	92	23	26
Nov. 1936	45	65	74	72	78	82	76	100	26	26
Dec. 1936	48	72	80	74	87	90	84	105	26	26
1937 ave.	42	65	67	74	79	82	85	107	25	27
Jan. 1937	48	73	81	76	90	93	88	108	27	26
Feb. 1937	48	74	78	76	90	92	90	108	27	26
Mar. 1937	53	78	80	78	87	88	90	112	27	26
Apr. 1937	53	80	82	80	84	86	90	112	27	27
May 1937	49	75	76	78	82	84	89	112	24	27
June 1937	47	70	71	78	78	82	88	112	25	27
July 1937	45	65	67	78	78	82	88	112	26	27
Aug. 1937	37	59	62	78	80	82	88	112	25	27
Sept. 1937	33	54	56	73	78	81	87	107	25	27
Oct. 1937	31	51	53	67	73	76	82	100	23	27
Nov. 1937	29	48	50	61	66	68	74	97	22	27
Dec. 1937	30	47	49	60	60	64	70	97	21	27
Jan. 1938	32	47	49	62	57	63	68	97	21	26
Feb. 1938	33	47	50	62	53	60	67	97	22	23
Mar. 1938	33	47	50	62	51	58	66	88	22	23
Apr. 1938	32	46	49	62	51	57	66	80	22	23
May 1938	31	46	48	62	50	57	64	80	21	22
June 1938	31	45	47	61	49	57	64	80	21	21
July 1938	33	48	50	57	53	59	64	80	24	21
Aug. 1938	31	48	48	53	56	59	64	80	23	22
Sept. 1938	30	47	47	53	52	58	64	80	23	22
Oct. 1938	32	48	48	53	54	60	65	81	24	22
Nov. 1938	34	50	48	53	56	61	66	83	24	22
Dec. 1938	32	50	47	53	56	60	65	83	24	22

Key rayon prices and statistics follow:

Prices	Jan. 3, 1939	Dec. 1, 1938	Jan. 3, 1938	Jan. 2, 1937
Viscose process				
75 denier (18-30 fils)...	$0.74	$0.74	$0.83	$0.90
100 denier (40 fils.)....	.68	.68	.76	.79
150 denier (40 fils.).....	.51	.51	.63	.60
Acetate process				
150 denier.....	.54	.54	.63	.60
Cupra. process				
150 denier (112 fils.)....	.52	.52	.68	.65
Rayon staple 1½, 3 and 5½ denier (viscose)...	.25	.25	.25	....

Indices of Rayon Deliveries*

Statistics**	Dec.	Nov.	Oct.
In year 1938.....	630†	578	689
In year 1937.....	242	253	366

*Rayon Organon. **Exclusive of Acetate. Daily average 1923–25 = 100. †Estimated by TEXTILE WORLD.

Statistics concerning cotton-mill operation and the raw cotton situation:

	Oct.	Nov.
Spindle activity (% activity).....	81.9	83.6
Spindle activity (millions of hours).	7,118	7,575
Cotton consumed (bales).....	542,778	596,289
Cotton exported (bales).....	464,590	480,788
Cotton imported (bales).....	10,933	14,322
Cotton ginned (prior Dec. 10).....	11,413,688 bales	

Rayon fabric shipment index reported by the National Rayon Weavers Association and the National Federation of Textiles, follows:

	Nov. 1937	Oct. 1938	Nov. 1938
Taffetas, twills, linings and other staples	159	266	248
Dress goods, novelties and other fancies	72	89	102
Total.....	101	151	150

TABLE I. CARDED FABRIC MARGIN

Date	Margin in cents	Date	Margin in cents
August, 1933..	21.4	October, 1937.	17.3
October, 1933..	19.1	January, 1938.	16.2
January, 1934.	18.4	February, 1938	16.2
April, 1934....	17.6	March, 1938...	16.1
July, 1934....	15.5	April, 1938...	15.9
October, 1934..	17.4	May, 1938....	15.9
January, 1935.	16.2	June, 1938....	15.2
April, 1935....	16.1	July, 1938....	16.5
July, 1935....	15.2	August, 1938..	15.6
October, 1935.	17.7	September, 1938	15.2
January, 1936.	17.2	October, 1938.	15.2
April, 1936....	14.3	November, 1938	14.7
July, 1936....	16.9	December, 1938	14.4
October, 1936..	21.2	Dec. 7....	14.9
January, 1937.	28.6	Dec. 14...	14.3
April, 1937....	25.9	Dec. 21...	14.2
July, 1937....	20.1	Dec. 28...	14.2

TABLE II. CARDED YARN MARGIN

Date	Margin in cents	Date	Margin in cents
August, 1933..	23.5	October, 1937.	15.3
October, 1933.	20.0	January, 1938.	13.5
January, 1934.	18.3	February, 1938	12.9
April, 1934...	15.9	March, 1938..	12.9
July, 1934....	14.6	April, 1938...	12.7
October, 1934..	14.6	May, 1938....	12.8
January, 1935.	13.5	June, 1938....	12.9
April, 1935....	14.1	July, 1938....	13.3
July, 1935....	14.3	August, 1938..	15.6
October, 1935.	15.8	September, 1938	13.7
January, 1936.	18.4	October, 1938.	14.0
April, 1936...	15.6	November, 1938	14.3
July, 1936....	15.0	December, 1938	14.7
October, 1936.	17.2	Dec. 7....	14.2
January, 1937.	20.8	Dec. 14...	14.5
April, 1937....	22.6	Dec. 21...	15.0
July, 1937....	17.8	Dec. 28...	14.9

Key cotton prices with usual comparisons follow:

	Jan. 3, 1939	Dec. 1, 1938	Jan. 3, 1938	Jan. 2, 1937
Spot Cotton, N. Y.....	8.94	8.95	8.38	12.91
Ditto, high previous month	8.95	9.36	8.51	13.11
Ditto, low previous month	8.50	8.87	7.95	11.56
10s hosiery cones.....	18½	19	18	29
1(s/2 carded skeins.....	20	19½	18	29½
20s/2 carded peeler warps.	22½	22½	21½	34½
60s/2 combed peeler warps	47	48	48	62
60s/2 mercerized cones...	63	63	63	75
37-in., 3-yd. drill.....	6½	6½	6½	9½
38½-in., 64 x 60s.....	4½	4½	4½	7 7/8
36-in., 4-yd., 56 x 60s....	5	5½	5½	8½
Denim, 2.20s.....	10½	10½	11½	15

Key silk prices and statistics follow:

Prices	Jan. 3, 1939	Dec. 1, 1938	Jan. 3, 1938	Jan. 2, 1937
Crack XX 13/15 wh. 78%	$1.85½	$1.75½	$1.55	$1.99½
Tram, 5thd Japan 85%...	2.53	2.46	2.29	2.85
Tram Crack XX 78%....	2.45	2.39	2.17	2.61
60s-2, spun silk.....	3.05	3.00	3.15	3.05

Statistics	Imports	Approximate deliveries	Stocks at warehouses
December, 1938.....	42,264	35,204	53,278
November, 1938.....	44,006	41,599	46,218
October, 1938.....	38,731	35,631	43,811

Key wool prices with usual comparisons follow:

	Jan. 3, 1939	Dec. 1, 1938	Jan. 3, 1938	Jan. 3, 1937
Fine and fine med. territory.....	$0.64	$0.67	$0.70	$1.06
Ohio ⅜s.....	.32	.34	.32	.51
Tops fine 64–66s....	.88	.90	.96	1.35
Average ⅜s.....	.75	.78	.78	1.15
High ½.....	.70	.72	.73	1.10
Noils, fine.....	.54	.56	.60	.83
½.....	.42	.44	.48	.65
2-40s 60s wstd yarn.	1.35	1.37½	1.45	1.85
2-32s 56s wstd yarn.	1.15	1.17½	1.22½	....
8020 serge.....	1.75	1.75	2.00	2.15

Current statistics on wool consumption and mill activity:

Wool consumed, clean equiv.	November (weekly average)	October (weekly average)
Apparel wool, lb.....	5,878,000	4,924,000
Carpet wool, lb.....	1,918,000	1,732,000
Machinery activity (40-hr. shift)		
Looms (50-in. and wider)..	88.7%	77.0%
Carpet looms.....	60.8%	50.1%
Combs.....	140.9%	115.1%
Worsted spindles.....	99.8%	81.4%
Woolen spindles.....	97.1%	90.9%

THE PERSONAL PAGE

Holdon M. Ashby, formerly president, has been elected chairman of the board of F. B. Huyck & Sons, Rensselaer, N. Y. He succeeds the late Frank B. Huyck. **Woolsey W. Weed** has been elected president and **James L. Braman** is vice-president and treasurer.

J. E. McGovern, formerly treasurer of the Hackettstown (N. J.) Silk Hosiery Co., Inc., has been elected secretary and treasurer of the recently established Alamac Hosiery Mills, Inc., Reidsville, N. C.

Robert V. Johnston was elected a vice-president of James Talcott, Inc., New York, at recent monthly meeting of the board. He will be in charge of the Johnston Factors Division.

F. L. Babcock, editor of *Fibre and Fabric*, Cambridge, Mass., was the guest of honor at a banquet at Hotel Manger, Boston, on Dec. 10. The testimonial dinner was given by a group of association secretaries with **James J. Burns,** of the National Association of Woolen & Worsted Overseers, as chairman. Mr. Babcock was presented with a silver plaque in recognition of his many years of service.

Marvin Cross, manager of the Fine and Fancy Goods Department of Southeastern Cottons, Inc., New York, has been elected a vice-president of the company.

Roy A. Cheney, managing director of the Underwear Institute, New York, has been appointed to the liaison committee of the American Trade Association Executives, for work connected with the Department of Commerce.

John E. Rousmaniere has succeeded **Sidney R. Schulhofer** as president of Palisades Mills, Inc., New York. **William M. Piven** has been appointed sales manager. Mr. Rousmaniere has long been identified with the textile industry, some years ago being an officer in the firm of Lawrence & Co. and previous to that in the firm of J. Spencer Turner Co.

E. A. Roberts, of the American Mutual Liability Co., Atlanta, Ga., has been elected chairman of the Textile Section of the National Safety Council. **E. M. Sally,** of American Enka Corp., Enka, N. C., is vice-chairman.

Franklin W. Hobbs, president Arlington Mills, Lawrence, Mass. and chairman of the Textile Foundation, was a dinner guest of Pres. Roosevelt at the White House on the evening of Tuesday, Dec. 13.

W. J. Still, superintendent of the American Spinning Co., Greenville, S. C., for the last five years, has been named vice-president and manager of the Borden Mills, Kingsport, Tenn. He assumed his new duties Jan. 1. He is succeeded by **Henry B. Miller,** recently superintendent of Brighton Mills, Shannon, Ga.

Peyton Rowan, formerly general manager and treasurer of the Anniston (Ala.) Yarn Mills, has become general manager of Profile Cotton Mills, Jacksonville, Ala. He succeeds **W. P. Hazlewood,** who resigned to join the Pickett Cotton Mills, High Point, N. C.

Capt. Elliott White Springs, president of Springs Cotton Mills, Lancaster, S. C., heads the list of subscribers to underwrite a $15,000 fund with which WPA projects in the form of an airport and a recreational center are to be secured for Lancaster. He subscribed one-half of the fund, $7,500, in behalf of Springs mills, the Bank of Lancaster and the Lancaster & Chester Railway.

John A. Law, president of Saxon Cotton Mills, Spartanburg, S. C., was re-elected a director of the Spartanburg County Fair Association at a recent meeting of the organization.

James H. Porter, chairman of the board of directors of Bibb Mfg. Co., Macon, Ga., formally presented a club building and a gymnasium to the community of Porterdale, Ga., where a large unit of the Bibb Mfg. Co. is located, late in November.

W. B. Smith, president of Washington Mfg. Co., Tennille, Ga., has been elected mayor of Tennille.

Alan B. Sibley, superintendent of Darlington, S. C., Mfg. Co., has been elected treasurer and a director of Judson Mills, Greenville, S. C., succeeding **John Killars, Jr.** Mr. Killars will continue his technical duties with Judson Mills, spending more time in New York.

W. F. Twitty has been elected president of Darlington (S. C.) Mfg. Co. He was formerly treasurer and general manager of the company.

Claude I. Ruth has been elected president of William G. Leininger Knitting Co., Inc., Reading, Pa., to succeed the late William G. Leininger. **Luke A. Lutz** will continue as treasurer and general manager, and **Clayton S. Reber** as assistant treasurer.

R. C. Anderson, president and treasurer of the Red Springs (N. C.) Weaving Co., Inc., has resigned, effective Dec. 31. He is also president and treasurer of the Carolina Process Co., Mount Holly, N. C., and will continue in that capacity.

H. O. Davidson, now chief engineer of American Viscose Corps. seven plants.

W. H. Jones, of William H. Jones & Co., Dallas, Tex., has been initiated as an honorary member of Kappa Chapter of Phi Psi textile fraternity at Texas Technological College, Lubbock, Tex. **Herbert A. Burow,** general manager of Bonham (Tex.) Cotton Mills, was elected honorary member and will be initiated at a forthcoming meeting. **Frederick Feiker,** Secretary of the Engineering Council and **E. T. Pickard,** chief of Bureau of Foreign & Domestic Commerce, were previously elected and will also be initiated.

William A. Longshore, newly elected president of the Philadelphia Wool & Textile Association, presided at the annual dinner given Dec. 11 at the Penn Athletic Club. He introduced **Herbert K. Webb** who acted as master of ceremonies. **Fred M. Brecht** was chairman of committee on arrangements.

L. M. Pierce has become secretary of Cetwick Silk Mills, Asheboro, N. C.

T. J. Culpepper, Jr., has become superintendent of Eagle & Phenix Mills, Columbus, Ga.

Maurice G. Townend of the Parks-Cramer Co., Charlotte, N. C., was elected president of the Charlotte Engineers Club at the annual business meeting held Dec. 12.

J. J. Barnhardt, vice-president of Cannon Mills Co., Kannapolis, N. C., retiring president of the Carolinas-Virginia Purchasing Agents Association at its annual meeting Dec. 3 at Chapel Hill,

CHANGES AT AMERICAN VISCOSE CORP.

Samuel A. Salvage, chairman of the board, American Viscose Corp., announced a number of changes in the company's organization early in December. These and other related changes follow:

William H. Brown has been elected secretary of the corporation and a member of the board of directors. He was formerly assistant treasurer.

Frank H. Griffin, vice-president, has been appointed technical director of the company.

Harry C. Neren, for 21 years manager of the company's Roanoke, Va., plant has been appointed general manager of the company's seven plants, including that of Front Royal which is now under construction. His headquarters will continue at Roanoke.

William B. Olmstead, recently in charge of viscose yarn sales, has been made sales manager of Luster Fibres, Ltd., the selling agents for American Viscose Corp.

H. O. Davidson, chief engineer of the Meadville plant, has been appointed chief engineer of the company. He is succeeded at Meadville by M. D. Morgan, formerly assistant chief engineer. Harry Crewdson has been appointed chief operating engineer for the company.

George M. Allen, who has been assistant plant manager at Marcus Hook, is appointed assistant plant manager of all the company's plants under Mr. Neren.

Leroy H. Smith, formerly plant chemist at Roanoke, has been made manager of the Roanoke plant, and Joseph W. Coxe, Jr., formerly assistant chemist has been made plant chemist at Roanoke. W. A. Barton remains as assistant manager at the Roanoke plant. L. H. Pownall succeeds Mr. Coxe.

N. C., was voted the annual award for the member contributing most to the association during the year. **C. W. Coker** of Sonoco Products Co., Hartsville, S. C., is the new president.

Richard Arrington has been elected president of the Union Bleachery, Greenville, S. C., succeeding his father the late John W. Arrington. **John W. Arrington, Jr.,** has been named vice-president and treasurer, and **Nelson Arrington** continues in the office of assistant treasurer.

Col. C. F. H. Johnson, president of Botany Worsted Mills, Passaic, N. J., addressed a meeting of the Botany Foremen's Association in the cafeteria of the mills on Dec. 14. Music was furnished by the Botany band. Col. Johnson expressed the hope that 1939 would be a normally good business year, depending, however, upon the legislative program and the effect of the reciprocal trade treaties just promulgated.

Emile F. duPont has been made manager of the new Nylon plant of E. I. du Pont de Nemours & Co., which is to be constructed at Seaford, Del. Mr. DuPont has had fifteen years continuous service in various departments of the company. **E. K. Gladding** is the manager of the Nylon Division of the company's rayon department.

Martin Moesel is the new president of the Gordonsville (Va.) plant of Piedmont Knitting Mills, Inc.

Arthur Paul is treasurer of the Red House (Va.) Mfg. Co., a newly organized hosiery mill.

Frank Ix, Jr., manager of the Charlottesville, Va., plant of Frank Ix & Sons, Inc., has presented five Chinese sacred deer, to the city of Charlottesville, to form the nucleus of a municipal zoo. The largest of the tiny deer is only 30 inches tall.

J. L. Kiser has established a new hosiery mill in Highland, a suburb of Hickory, N. C. There are 20 machines and auxiliary equipment.

B. H. Liebenguth, Wayland, N. Y., has entered into partnership with **Francis Conrad** and **Earl Allen** in operation of the Steuben Silk Co., Bath, N. Y.

W. W. Viebahn, of Congoleum-Nairn, has been elected president of the Philadelphia Carpet & Upholstery Club.

Frank L. McDonald, Cone Export & Commission Co., was elected president of the Boston Association of Textile Salesmen at their annual meeting Dec. 13. He succeeds **Clayton A. Colcord,** who was elected secretary-treasurer.

Eustis L. Hopkins, member of the firm of Bliss, Fabyan & Co., New York, was recently honored by the board of directors of the Merchants' Club, New York, by being elected honorary member for life. Mr. Hopkins is the oldest living member of the Merchants' Club having been elected to membership in April of 1888. He has served the club as a director, treasurer, vice-president and president.

Paul S. Mathes, assistant trust officer of the Commercial National Bank of Chattanooga, Tenn., is one of the incorporators of the new North Georgia Properties Co., Inc., recently organized to operate the Summerville (Ga.) Cotton Mills.

William J. Dunlap, for several years president of the Rockville (Conn.) Textile Union, has been elected president of the newly-organized Vernon Taxpayers' Association. **Francis S. Nettleton,** general superintendent of the Hockanum Mills of M. T. Stevens & Sons Co., was elected vice-president.

Hines S. Richardson, who has been assistant to the overseer of weaving of the Blue Ridge plant of Burlington Mills Co., Alta Vista, Va., has accepted a similar position with S. Slater & Sons, Slater, S. C.

F. S. Dennis has resigned as general superintendent of the Granite Falls Mfg. Co., and the Granite Cordage Co., both at Granite Falls, N. C., to become general superintendent of Sibley-Enterprise Mfg. Co., Augusta, Ga.

John M. Burnett, who was connected with the American Woolen Co. plant in Skowhegan, Me., for 10 years, has been engaged by the Heywood-Schuster Co. in East Douglas, Mass., as supervisor of the women's wear department of the five plants of the concern located in that vicinity.

Gordon Peacock, who has recently made headquarters at Toronto, Canada, as a representative of the English wool house of H. Dawson & Sons, Ltd., is establishing a Boston branch of this organization this month.

Bradford D. Gallagher, formerly with Lucas-Henke's Co., Swift & Co., and Adams & Leland, Inc., of Boston, Mass., has become a western buyer for Angell, Bronsdon & Du Pont, Boston.

S. E. Sanford, sales manager of the Monument Mills, Housatonic, Mass., has resigned from that organization. His future plans have not yet been announced. He has been succeeded by **Edwin Collins. Thos. C. Armstrong,** of the New York office, has been transferred to Housatonic to devote his entire time to yarn sales.

Frank D. Gardiner, of Charles J. Webb Sons, Inc., Boston, has again been appointed chairman of the house and entertainment committee at the annual dinner of the Boston Wool Trade Association scheduled for Feb. 2 at Hotel Statler. Other committee members are **Elliott Bicknell, J. B. Billings, R. W. Dana, H. T. Lindsey, D. A. Macdonald, J. H. Richards, S. J. Rogers** and **A. E. Rust.**

Walter Johns has become associated with the rayon women's wear division of Pacific Mills, New York.

J. P. Miller, is now representing the National Spinning Co., Brooklyn, N. Y. in the sale of cotton yarn in the New England territory. His headquarters are at 40 Westminster St., Providence, R. I.

Garnett C. Robey was appointed last month to head the Atlanta Office of the Riverside & Dan River Cotton Mills, Danville, Va.

Victor Bowman, formerly general sales manager of the Mohawk Carpet Mills, New York, has been named director of distribution, and **Francis Monahan** has been named general sales manager.

Theodore G. Joslin, formerly president of the Wilmington News-Journal Co., Wilmington, Del., has been named director of the public relations department of E. I. du Pont de Nemours & Co. He succeeds **Charles Weston** who resigned on Jan. 1, after completing 23 years service with the company.

J. Elmer Hahn, newly elected vice-president and sales manager of the Lebanon (Tenn.) Woolen Mills, has opened the company's new direct sales offices in 40 Worth St., New York.

Leslie Browder has been appointed credit manager of Riverside & Dan River Cotton Mills at the firm's New York office. Mr. Browder has been with the organization for 21 years.

M. P. Schatt has been elected assistant treasurer of Pepperell Mfg. Co., Boston, Mass. He continues as credit manager of the company which office he has occupied since 1929.

Frank W. Conklin was chairman of the Entertainment Committee of Commercial Factors Employees' Association which staged the annual Christmas party of the Commercial Factors Corp. at the Belmont Plaza Hotel, New York, Dec. 15.

W. J. Armfield, 3rd., Asheboro, N. C., will be manager of the newly established Randleman (N. C.) Full-Fashioned Hosiery Mills, Inc.

I. B. Garner, formerly of Union, S. C., has become overseer of the cloth room at the Brandon Corp., Woodruff, S. C., succeeding **W. H. Fanning.** Mr. Garner has been associated with the Excelsior Mills at Union as an overseer.

Paul F. Fabian has resigned as superintendent of the Uncas Finishing Co., Mechanicsville, Conn., to become co-manager with **William Staples,** present manager, of the Fall River division of the Arkwright Finishing Co.

Allen Dennis, formerly superintendent of the No. 1 mill of Bibb Mfg. Co., Macon, Ga., has been assigned to the general superintendent's office. He is succeeded by **P. E. Findlay, Jr.,** formerly superintendent of the company's Payne unit. **S. P. Jenkins** has become superintendent of the Payne mill; he was previously assistant superintendent of the company's mill in Columbus. He is succeeded there by **R. E. Henderson.**

C. C. Campbell, employment manager for the North Carolina mills of the manufacturing division of Marshall Field & Co., has been promoted to a position in the accounting department as assistant to **E. D. Pitcher. H. E. Latham,** who has been in the cost and budget department, has been promoted to the position of employment manager to succeed Mr. Campbell.

Alex Gee is now assistant superintendent of Spartan Mills, Spartanburg, S. C., succeeding **T. I. Dashiell,** who was promoted recently to superintendent.

Robert Folkman, formerly superintendent of Nebel Knitting Mill, Charlotte, N. C., has joined the Hugh Grey Mills, Concord, N. C.

R. N. Sewell has become a member of the general office force of Bibb Mfg. Co., Macon, Ga. He was previously a salesman for the company in New York.

"Uncle Sumpter" Randall, aged 72, of Graniteville (S. C.) Mfg. Co., was honored recently at a banquet to commemorate his 60 years of service with the company.

J. Gaius Halsey has been named general superintendent of Newmarket Mfg. Co., Lowell, Mass. He was formerly superintendent of William Skinner & Sons, Holyoke, Mass. He came to the Skinner organization in 1932 from Duplan Silk Co.

John Stressinger, Jr., has been employed by Hallowell, Jones & Donald, Boston, as a western buyer.

Charles Hampp has become superintendent of Alamac Hosiery Co., Inc., Reidsville, N. C., succeeding **Albert Donst,** resigned.

B. F. Underwood, superintendent of the Piedmont Mfg.

Co., has become superintendent of the Easley Mills No. 1, at Easley, S. C. **Z. P. Lipscomb,** who has been superintendent at Easley, will succeed Mr. Underwood at Piedmont.

Robert W. Twitty has been appointed superintendent of the Laurens Cotton Mills, Spartanburg, S. C. **J. E. Smith,** formerly of Woodruff, has been appointed assistant superintendent. **Charles B. Green** was recently appointed general manager of the plant. **W. K. Dana,** formerly superintendent, resigned recently to make a tour of South America.

Hugh Owens, formerly of the Eufaula, Ala. plant of Cowikee Mills, has been made assistant to the superintendent of the firm's plant at Union Springs, Ala.

F. B. Bodenheimer has been promoted to the position of general overseer of Mills No. 1 and No. 2 of Granite Falls Mfg. Co., Granite Falls, N. C.

James Oates has become superintendent of carding and spinning for the Santee Mills, Bamberg, S. C., having resigned his position as superintendent of spinning at the Sibley plant of the Sibley-Enterprise Mfg. Co.

C. H. Williams has become superintendent of the Suiting Mill, formerly the Rhode Island Mill, of Marshall Field & Co., Spray, N. C.

Milton H. Frisch, recently west coast representative for Farr-Alpaca Co., has joined Brybro Fabrics, New York, in a similar capacity.

Obituary

Oliver S. Hawes, 78, a director of Berkshire Fine Spinning Associates, Fall River, Mass., died on Dec. 7. He was formerly president of the King Philip Mills, and, early in his career, he was the founder of the firm of O. S. Hawes & Bro., a pioneer in the yarn brokerage field in New England.

Benjamin W. Brown, 75, president of Geo. Brown's Sons, Inc., Mount Joy, Pa., textile manufacturers, died Nov. 28. He was the last of seven brothers who, with their father, came to Mount Joy from Philadelphia in 1883 and established their mill.

Isaac T. Prosser, agent of Chicopee Mfg. Co. until his retirement seven years ago, died on Nov. 29 at his home in Charleston, R. I. He was appointed agent when the Massachusetts corporattion became a subsidiary of Johnson & Johnson.

Oliver Prescott, 70, former president of Wamsutta Mills, New Bedford, Mass., died on Dec. 9. He was a director of Potomska Mills and active in industrial circles for many years in his home city.

Arthur I. Harvey, associated with Universal Winding Co., Providence, R. I., since the earliest days of its organi-

David R. Coker, whose obituary was recorded in these columns last month, shown on his plant breeding farm at Hartville, S. C.

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STA-PUT LUBRICANTS

zation, died recently. He joined the company in 1901 as assistant to Simon W. Wardwell. He later became works manager and in recent years his activities were almost wholly with the sales department.

Charles L. Auger, 78, founder and president of National Dyeing & Printing Co., East Paterson, N. J., died Jan. 5.

C W. Walton, 53, treasurer and assistant secretary of Manetta Mills, Monroe, N. C., died Dec. 22.

Tom Tarwater, aged 57, president of Harriman (Tenn.) Hosiery Mills, died Dec. 21 at Albuquerque, N. M., where he had gone in an effort to regain his health after a serious operation. He was widely known for his civic activities and his successful employee relations policies.

William P. Aldrich, 59, owner of Waldrich Co., Delawanna, N. J., and Manhattan Print Works, Passaic, N. J., died suddenly Jan. 4. Mr. Aldrich had for many years directed these two companies, both of which were established by his father.

Charles F. Sawyer, 69, treasurer of Sawyer, Regan & Co., Dalton, Mass., died at his home in that place on Dec. 27 following a stroke. He had been superintendent of the Sawyer Mills, Dover, N. H., from 1895 till they were acquired by the American Woolen Co. in 1899, following which he was resident agent for eight years. He went to Dalton in 1907.

Joseph Haber, 51, president of Colonial Print Works, Paterson, N. J. and a director of Allied Textile Printers, died in Florida Dec. 27.

Edwin C. Buffington, 71, formerly superintendent of the U. S. Bobbin & Shuttle Co., Manchester, N. H., died at Great Neck, L. I., on Dec. 26.

James Bradley Newton, who retired six months ago after serving for 20 years as a salesman for the Sipp-Eastwood Corp., Paterson, N. J., died recently.

Col. Joseph Dwight Chaffee, 92, of Willimantic, Conn., retired silk manufacturing executive, died Dec. 14 at the Windham Community Memorial Hospital. He established his own manufacturing business at Church and Valley streets in 1891 and continued a successful business until his retirement in 1927.

H. O. Lovvorn, 62. charter member of Manville Mills, Carrollton, Ga., vice-president and manager for many years prior to retirement in 1936, died the last of November.

Howard P. Dixson, 69, general manager of Suscon Silk Throwing Co., Susquehanna, Pa., for the last two years, died Nov. 25. For more than 25 years he had operated the Keystone Silk Co. there.

Addison H. Bullard, 83, for about 40 years treasurer of the Taft Woolen Co., Caryville, Mass., retiring from that position two years ago, died Dec. 9.

Gerald M. Rhodes, president and treasurer of the Pondville Woolen Corp., Auburn, Mass., died Dec. 8 at his home in Worcester.

Timothy J. Heffernan, 77, until his retirement a few years ago, president of the Riverside Cotton Mills, Augusta, Ga., died early last month.

Harry B. Weinsheimer, 69, who resigned in 1930 as general manager of the Becha Silk Mill, Allentown, Pa., died at his home there recently. Following the World War he designed the "Victory Ribbon" for bars and medals distributed by the Government.

E. A. Hall, who three years ago was manager of the Cannon Mills unit at York, S. C., and who previous to that had been superintendent of Social Circle Cotton Mill and of the Baldwin unit of Aragon-Baldwin Cotton Mill, died at his home in Chester, S. C., Dec. 14.

Hardy Bryan Branner, 87, treasurer of Standard Knitting Mills, died recently at Knoxville, Tenn. He was one of the original organizers of the firm nearly 40 years ago.

E. R. Caldwell, 57, for a number of years overseer at the Erwin (N. C.) Cotton Mills, died Dec. 2, at a Durham, N. C. hospital.

Patrick E. Victory, 80, superintendent of Flint Mills, Fall River, Mass., at his retirement in 1932 and formerly overseer of weaving at Royal Mills, Riverpoint, R. I., died at Phenix, R. I., Dec. 5.

Arthur K. Nicols, master mechanic at Nashua (N. H.) Mfg. Co., died Nov. 29. He had been with Nashua since 1906, coming from the Slater Cotton Mills, in Pawtucket, R. I.

Alfred Elson, long spinning department head at the historic Orcuttville Mill, West Stafford, Conn., died Nov. 23 at Woburn, Mass., where he had lived for a number of years.

George T. Crandall, 56, superintendent of the Adams, Mass., mills of Berkshire Fine Spinning Associates, Inc., died Dec. 15.

Carl Gray, formerly manager of the Atlanta office of B. F. Sturtevant & Co., Boston, died recently in Maine.

W. Howard Holden, 79, president of Hamill Spinning Co., Philadelphia, died Dec. 16.

Frank Ackroyd, 73, for many years wool buyer and superintendent of wool sorting at Empire Worsted Mills, Jamestown, N. Y., died recently.

Here's To BETTER PROFITS In 1939

Right now, many textile firms are taking steps to assure themselves better earnings in 1939. They are increasing the spread between cost and selling price by greatly lowering their production costs. This is being accomplished by modernizing the equipment in their dry rooms. In some cases drying costs have been cut as much as 50% by replacing old drying equipment with the newest Proctor Dryers. Proctor engineers have created completely new types of drying machinery in the past few years, and have made important improvements in existing types . . . bringing large savings in time, steam, power, labor and floor space, as well as considerably improved quality of the finished product.

We suggest that you, too, adopt this plan for better profits in '39. Let us find out for you what savings could be made in your plant by modernizing your drying department. There will be no obligation on your part, of course.

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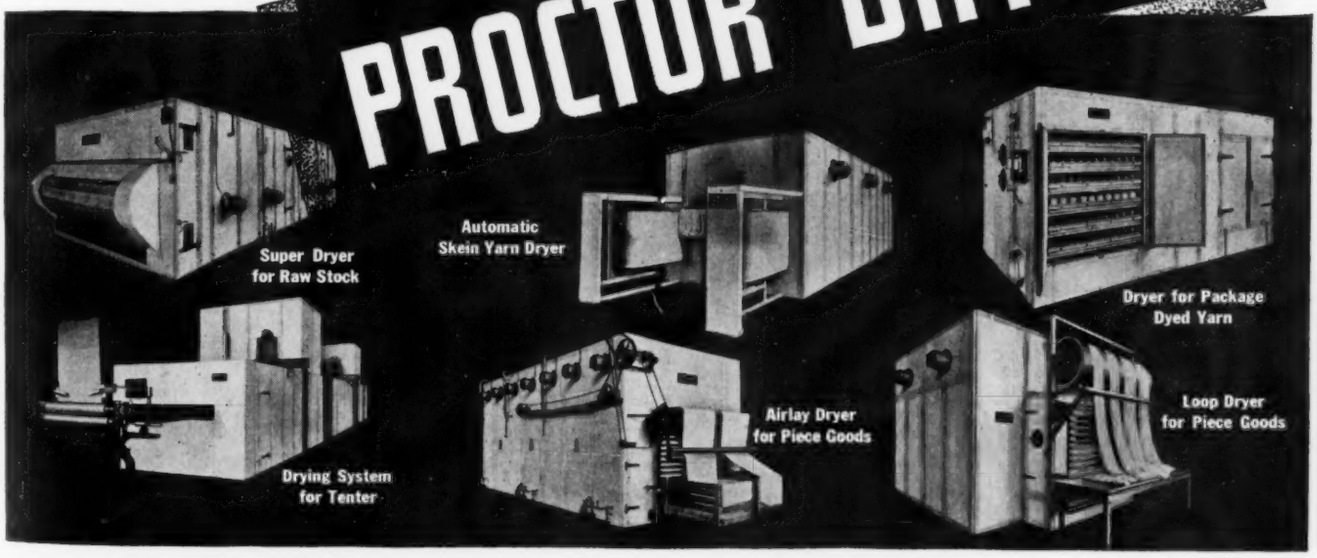
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MILL NEWS

Cotton Mill News

Russell Mfg. Co., Alexander City, Ala., is replacing 40,000 spindles with Saco-Lowell long draft equipment.

Anniston (Ala.) **Mfg. Co.** has installed two Terrell bobbin strippers and one Abbott winder.

Nichols Mfg. Co., Bridgeport, Conn., has incorporated to manufacture fabrics. Incorporators: Homer E. Nichols, Fairfield; Louis Robiner, Bronx N. Y.; and George W. Meder, Fairfield.

Powdrell & Alexander, Inc., Danielson, Conn., has leased additional manufacturing space at Charlotte, N. C.

North Georgia Properties Co., Summerville, Ga., was recently incorporated to conduct the plant and properties of Summerville Cotton Mills which were bought by a group of bondholders in September.

Davis Mill Corp., Fall River, Mass., a unit of United Merchants & Mfg. Co., has awarded contract to Vappi & MacDonald Co., Inc., Fall River, for alterations and improvements in mill. Charles T. Main, Inc., Boston, Mass., is engineer.

United Merchants & Mfrs, Inc., reports net loss of $951,724 for year ended July 31, 1938 against net profit of $1,575,808 for previous year. Sales for the recent period were $35,470,098.

American Thread Co. has voted to reopen the company's units Nos. 2 and 3 in Holyoke, Mass.

Wamsutta Mills, New Bedford, Mass., reports net loss of $119,914 for the fiscal year ending Sept. 30, 1938, including damage by hurricane. For similar period in 1937 there was net profit of $69,559.

Aponaug Mfg. Co., Mill No. 4, Yazoo City, Miss., was destroyed by fire Dec. 27.

Tupelo (Miss.) **Cotton Mills** will reopen on a co-operative basis, the local chamber of commerce announced, with workers buying stock out of their weekly paychecks.

Nashua (N.H.) **Mfg. Co.,** reports net loss of $247,000 during fiscal year ending Oct. 29 against net profit of $812,663 for previous year. Sales dropped 42%. Company may resume operations at Tremont and Suffolk branch mills, closed about 6 years ago.

Lockport (N. Y.) **Cotton Batting Co.** has let contract to August Feine & Sons Co., Buffalo, N. Y., for new one-story addition for warehouse to replace unit destroyed by fire; cost $50,000. J. M. Tully, Lockport, is architect.

Glencoe Mills, Burlington, N. C., are constructing one-story addition.

Robinson Yarn Mills, Inc., Dallas, N. C., is installing new roving machinery.

Cannon Mills Co., Kannapolis, N. C., will construct a dam on Buffalo Creek, two miles northwest of Kannapolis to provide an adequate water supply for the mills.

Jennings Cotton Mills, Inc., Lumberton, N. C., plan installation of equipment for increase in capacity. Cost about $150,000, including machinery.

Mansfield Mills, Inc., Lumberton, N. C., have plans for improvement in mill, including installation of new equipment, early in 1939; cost about $200,000.

Mooresville (N.C.) **Cotton Mills** have been changing equipment in the opening and picking departments to Saco-Lowell blending reserve system.

Columbia Mfg. Co., Ramseur, N. C., has installed new Saco-Lowell opening and picking systems.

A. Schottland, Inc., Rocky Mount, N. C., will install some of the looms from their interests in the East, which have recently been sold.

Greenwood (S. C.) **Cotton Mills** have completed a 42x92 ft. addition.

Arcade Cotton Mills, Rock Hill, S. C., are equipping every home in the village with bath rooms at cost of $20,000.

Eureka Cotton Mills, Englewood, Tenn., recently acquired by C. L. Upchurch & Sons, Athens, Ga., will resume operations in cloth department at early date. Work is under way on installation of equipment. C. B. Walls will be foreman at mill.

Cherokee Spinning Co., Knoxville, Tenn., has constructed a one-story addition to be used for warehouse.

Wool Mill News

Assawaga Mill of the Angus Park Woolen Co., Dayville, Conn., was sold at auction Dec. 16.

Forest-Pondicherry Co. owning the Pondicherry Woolen Mill, Bridgton, Me., have authorized the president, Bertram Scott, to complete the lease of the building to B. F.

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MILL NEWS

Kaufman of New York who plans soon to begin operations.

Wyandotte Worsted Co., Waterville, Me., already operating four plants, has purchased the Star Worsted plant and equipment in Fitchburg, consisting of 11,000 spindles.

Holyoke (Mass.) **Worsted Co.** is preparing to install a dye plant in new quarters in the Hadley Mills. Heretofore, Holyoke Worsted has been shipping its gray cloth to Rhode Island for dyeing.

Whittall Carpet Mills, Worcester, Mass.—Negotiations have been made by Matthew P. Whittall, former head of M. J. Whittall Associates, Inc., aided by Mr. and Mrs. James E. Whitin, for purchase of controlling interest from company which acquired it a number of months ago. The Warren Associates have withdrawn. Company will be reorganized. Plant was placed in operation Dec. 27. It has been closed since last June.

Cocheco Mfg. Co., East Rochester, N. H., is installing a new dryer in its finishing department and four additional spinning mules have been purchased.

Waterloo (N. Y.) **Mills, Inc.,** long the leading industry in its village, is being dismantled and machinery is being shipped to a textile center in Massachusetts by its purchaser, Harry Stephenson. C. S. Gates is in charge of dismantling the mill.

Henry Holmes Sons Co., Philadelphia, is in voluntary bankruptcy. Referee is D. W. Amram and John Morton, trustee.

Rayon & Silk Mill News

Manchester (Conn.) **Equipment Co.** has been organized as an interest of Cheney Bros., Manchester, to manufacture textile fabrics suitable for parachutes and allied purposes.

Hartford Rayon Corp., Rocky Hill, Conn., has arranged with RFC for a loan of $300,000 for financing and operations.

E. I. du Pont de Nemours & Co., Rayon Dept., Wilmington, Del., has approved plans for new plant unit at Belle, W. Va., to be used for production of intermediate materials required for manufacture of Nylon at new mill for latter product at Seaford, Del. New mill at Belle is reported to cost over $200,000 with equipment.

Celanese Corp. of America, Cumberland, Md., is installing yarn machinery in building formerly used for weaving. Some of the looms are being moved to a location in Pennsylvania. In reference to the proposed plant at Pearisburg, Va., it is expected construction will start not later than March 1.

Jennings Silk Co., Holyoke, Mass., has sold its equipment to a New York textile broker for a New York manufacturer. The new concern will not use the Jennings name or good-will.

New Process Rayon, Inc., Gloucester, N. J., is about to start up after six month shutdown.

Edgar A. Reilly, Inc., Paterson, N. J., has leased former mill of McBride Brothers, Fullerton, Pa., totaling about 33,000 sq. ft. of floor space, and will equip for branch mill for warping, winding and sizing of silk and rayon. Proposed to have mill in service early in 1939.

American Viscose Corp., Front Royal, Va., will begin operations about Aug. 1, 1939, according to latest reports.

Steuben Silk Mills, Bath, N. Y., is now operating on sheers, chiffons, etc., in the gray. F. V. Conrad and E. J. Allen, for some years with Huguet Silk Co., are in charge.

Fulton (N. Y.) **Silk Mills** is in the hands of Maurice B. Conley as trustee in foreclosure proceedings started by RFC.

Merrill Silk Co., Hornell, N. Y.—Lyle W. Jackson has been appointed trustee for this company, which recently filed a petition in bankruptcy.

Cetwick Silk Mills, Inc., Asheboro, N. C., has been purchased by W. J. Armfield, 3rd., and associates. The mill will be operated as commission throwsters under the direct management of Mr. Armfield. L. E. Milks, for many years superintendent and secretary, will be superintendent.

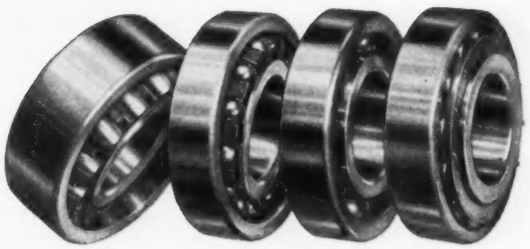
Gettysburg (Pa.) **Throwing Co.,** occupying the former Eagle Silk Mill started up last month. R. E. Berkheimer, who managed the plant for Eagle, is again in charge.

Knitting Mill News

Alabama Knitting Mills, Eufaula, Ala., has been reorganized with C. E. Regan as president; Lee Carroll, vice-president and Dixon Watson, secretary.

Green Cove Springs (Fla.) **Full-Fashioned Hosiery Mills** will be under the management of J. C. J. Strahan of New York. This is a new mill.

Contour Hosiery Mills, Rockford, Ill., has asked bids



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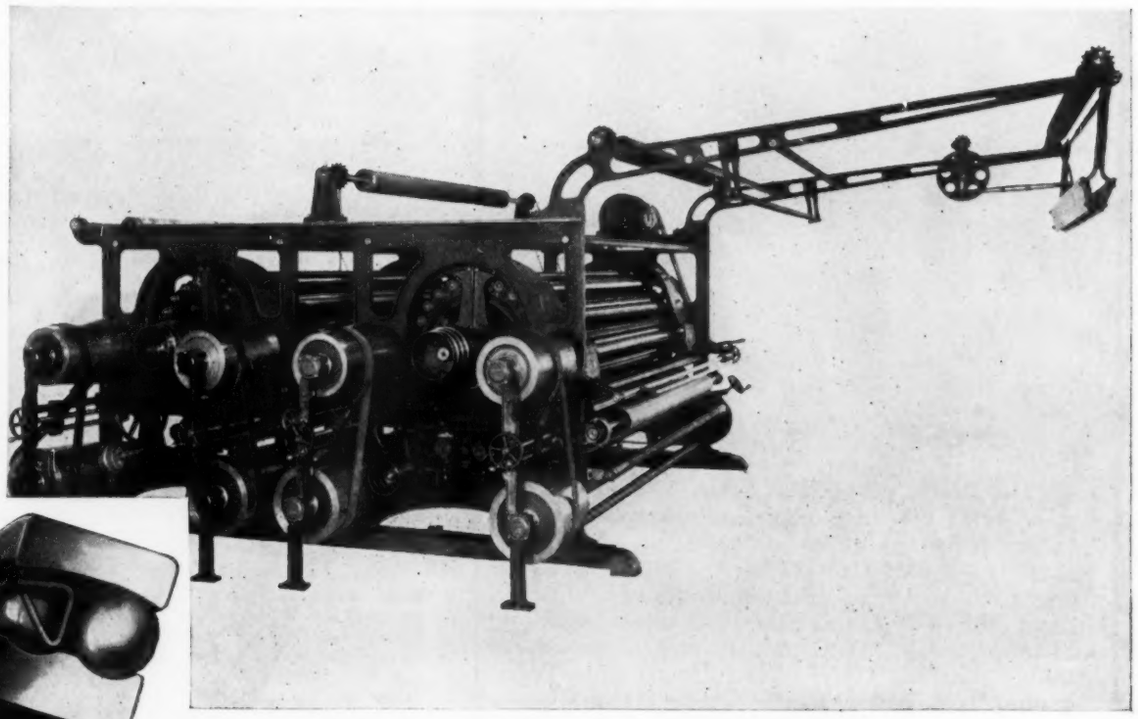

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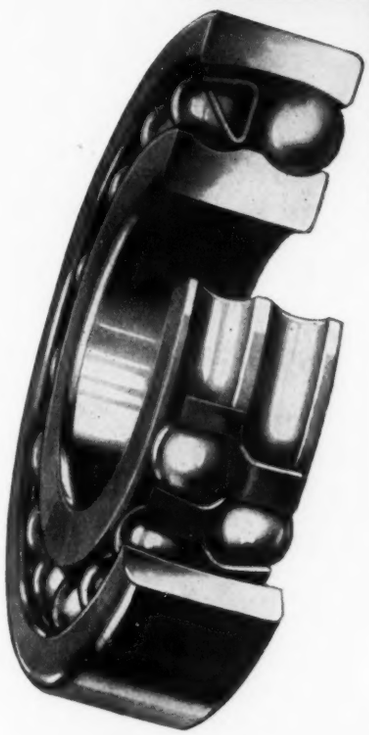

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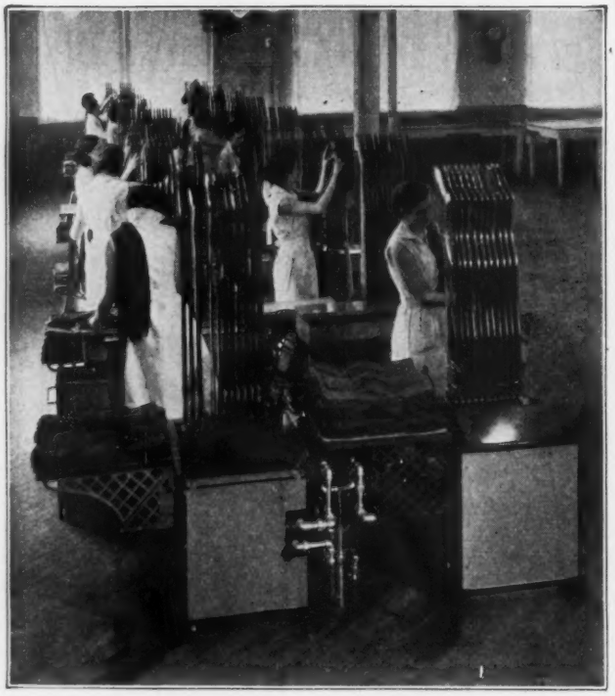

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Any one feature alone, of the numerous advantages which the PARAMOUNT DUAL HEAT MACHINE offers, will justify a change to this superior method of hosiery finishing.

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MILL NEWS

on general contract for one-story addition, 40 x 71 ft.; cost over $25,000, with equipment. Bradley & Bradley, Rockford, are architects.

Westfield (Mass.) **Knitting Mills** have been organized by Arthur J. Ridley to take over the former Atwater Knitting Co. and operate it on sweaters and trunks.

Century Knitting Mills, Inc., Hillsdale, Mich., recently organized, plans early operation of a local mill. Paul Anke is one of heads.

Julius Kayser & Co., New York, N. Y., plans installation of 18 28-section machines at Hattiesburg, Miss., unit now under renovation. Completion of installation is set for summer of 1939 but partial operation of plant is possible by Feb. 1. Plant was formerly occupied by Pioneer Silk Mills.

Jackson County Mills, Pascagoula, Miss., will double their capacity by adding 200 sewing and 45 knitting machines.

Gotham Silk Hosiery Co., New York, N. Y., has announced a program of expansion involving purchase of $1,000,000 worth of 45- and 51-gauge long-section full fashioned machines over the next three years.

Davis Full-Fashioned Hosiery Mills, Burlington, N. C., have ordered a number of Einsiedel-Reiner high-speed machines for delivery beginning Jan. 1.

Aberdeen Hosiery Mill Co., Charlotte, N. C., a subsidiary of Crystal Hosiery Co., Philadelphia, began operations last month with 10 full-fashioned machines.

Finer Full-Fashioned Hosiery Co., Charlotte, N. C., announces plans for expansion during 1939 at cost of about $100,000. There will be a new building and additional equipment.

Hoover Hosiery Mills, Concord, N. C., have bought from Robert Reiner, Inc., Einsiedel-Reiner heeling machines to be used with their present type leggers which have been converted into single unit type.

Fayetteville (N. C.) **Knitting Mills** have recently added to their Einsiedel-Reiner machines to bring the total installed to eight. They have under order with Robert Reiner, Inc., Weehawken, N. J., four additional machines for delivery early this year.

National Hosiery Mills, Inc., Denton, N. C., formerly Rogers Hosiery Mills, Inc., have put 25 machines into operation. Others will be started later. This mill was purchased by Mayor C. Bisher in the fall, and a new company formed, capitalized at $50,000.

Wrenn Hosiery Mills, High Point, N. C., are building an addition.

J. C. Johnson, Longview, N. C., is building a one story 36 x 62 ft. hosiery mill to house 29 machines formerly operated in partnership with Dr. F. B. Hicks in Hickory.

Shafer Hosiery Mill, Mt. Airy, N. C., was gutted by fire recently; damage $8,000.

Randleman (N. C.) **Full Fashioned Hosiery Mills, Inc.,** has been organized by W. J. Armfield, 3rd, W. F. Armfield, Jr., and J. D. Croom, Jr. Dermont Construction Co., High Point, has the construction contract. Company has ordered 26 new Reading full-fashioned machines.

Wyatt Knitting Co., Sanford, N. C., has been chartered by W. F. Wyatt, Aetna Walker Wyatt and John A. Bailey, all of Burlington, N. C.

Francis-Louise Hosiery Mills, Valdese, N. C., has completed erection of new mill on Highway No. 70, near Valdese, and machinery installation is in progress. New unit is one-story, 50 x 112 ft., and will represent an investment over $45,000, with equipment. Company was organized recently.

Wadesboro (N. C.) **Full Fashioned Hosiery Mills, Inc.,** has been formed to manufacture hosiery. Incorporators: W. J. Armfield, 3rd, W. B. Moore and L. D. Rivers. Construction contract has been let to Dermont Construction Co., High Point.

Caswell Knitting Mills, Yanceyville, N. C., through A. Glenn Holt, have ordered 15 Einsiedel-Reiner high-speed machines from Robert Reiner, Inc., first delivery to be made this month.

Platzner Knitting Mills, Cleveland, Ohio, has been organized by Eugene Platzner, formerly with Federal Knitting Mills Co., now liquidating.

Supreme Hosiery Mill, Jersey Shore, Pa., have begun erection of new one-story mill at Oliver and Cemetery Sts., to cost close to $45,000.

Quality Hosiery Mfg. Co., Murfreesboro, Tenn., has leased its plant to May Hosiery Mills, Nashville, Tenn.

Collegiate Hosiery Mills, Collins and Westmoreland Sts.,

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BETTER YARNS
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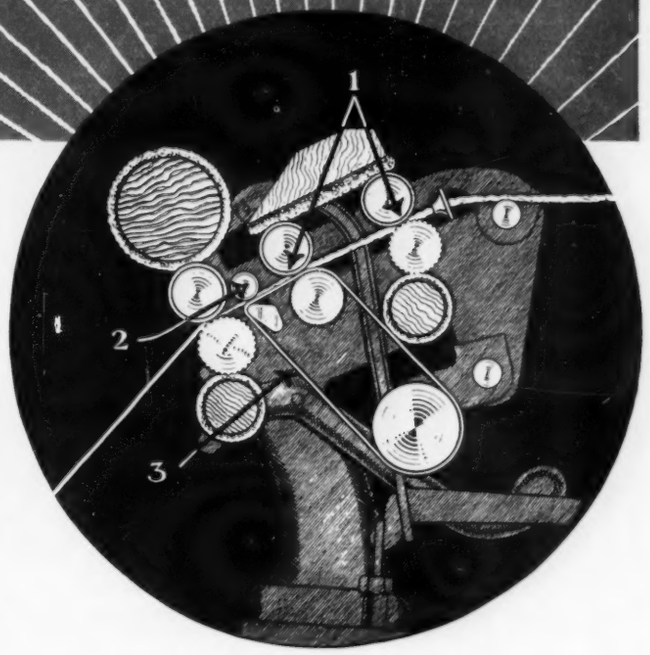

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A CONCRETE EXAMPLE is a large South Carolina mill with 31,440 spindles of Saco-Lowell Better Draft Spinning attaining the production formerly requiring 40,608 conventional spindles, and in addition 78 roving frames are no longer needed.

MANY SIMILAR RESULTS in Europe, South America, and other countries are convincing evidence that, of all the long draft available today, more than any other does the Saco-Lowell Better Draft meet the demands of mills insistent on economy in operation, effectiveness in drafting, simplicity in construction, and adaptability to all the commercial cottons used today, regardless of character or origin.

SACO-LOWELL BETTER DRAFT SYSTEM is equally efficient on synthetic staple fibres and mixtures of this material with cotton.

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3. A CARRIER APRON whose single function is transporting the strand of unlocked fibres. It has nothing to do with the drafting, and its performance is unaffected by age or atmospheric conditions.

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Textile World Yearbook and Catalog

MILL NEWS

Philadelphia, Pa., is being started up by Richard L. Belber on boy's golf and crew socks. About 89 seamless machines have been installed, shipped up from the Mountcastle Hosiery Mills, Lexington, N. C.

Somerset Knitting Mills, Franklin and Somerset Sts., Philadelphia, Pa., equipped with 8 jacquard machines on sweaters, has been started up by Dave Rubin and E. Zerden.

Magnet Mills, Clinton, Tenn., is initiating a modernization program which will ultimately involve replacement of all its 120 machines with sheerer equipment.

Burdwyn Hosiery Mills, Pottstown, Pa., has been organized by Samuel Burd to take over the local Stowe Hosiery Mills.

Best Made Silk Hosiery Co., Quakertown, Pa., has let contract for mill addition and for 13 additional machines.

Nolde & Horst Co., Reading, Pa., are to start a men's and children's hosiery mill at McMinnville, Tenn., in the Welwood Silk Throwing Mill on Sparta road, which structure is being remodeled and equipped. Mill will open around Feb. 15. J. H. Zechman will be foreman.

Myrna Lee Hosiery Mill, Tonawanda, Pa., plans expansion, including installation of six new knitting machines and auxiliary equipment. Capacity will be increased about 25%.

Charleston (Tenn.) **Hosiery Mill** has been purchased by the **Hiwassee Hosiery Mill, Inc.,** newly organized Tennessee corporation, which will continue operation of the plant on anklets. W. C. Campbell is president and H. T. Harle, secretary-treasurer.

Judith Hosiery Mills, Niota, Tenn., is doubling its equipment by installing 20 45-gauge full-fashioned machines. It has been operating 20 42-gauge machines.

Angus Hosiery Mill, Sevierville, Tenn., recently organized, has taken over plant formerly the Sevierville Knitting Mill, and will revamp at once.

T. G. Wallner, Pulaski, Va., and associates placed contracts last month with Fiske-Carter Construction Co., Spartanburg, S. C., for three full-fashioned hosiery mills, each one story, about 115 x 130 ft. The operating corporations and locations follow: **Town House Hosiery Co.,** Chilhowie, Va.; **Royal Oak Hosiery Mill, Inc.,** Marion, Va.; **Salem** (Va.) **Full-Fashioned Hosiery Mill.** Cost of each is about $100,000.

Mountain Empire Hosiery Mills, Inc., Bland, Va., recently chartered with capital of $1,000,000 will have mill ready for service early in 1939. Estimated cost close to $100,000, with equipment. Company also proposes early establishment of other mills in southwestern Virginia. J. C. Dobson, Pulaski, Va., and Homer K. Bowen, Wytheville, Va., head new company.

Kenmore Hosiery Co., Fredericksburg, Va., has added machines to its previous equipment of 21.

Galax (Va.) **Knitting Co.** has placed orders for $50,000 worth of new machinery including 24 reverse-plating wrap machines.

Processing Plant News

North Georgia Processing Co., Toccoa, Ga., a subsidiary of the Clark Thread Co. of Georgia, has let contract to A. K. Adams Co., Atlanta, for a new bleachery.

Kendall Co., Walpole, Mass., has awarded contract to William M. Bailey Co., Boston, Mass., for two-story addition to bleachery, about 35 x 50 ft.; cost close to $45,000.

Lowell (Mass.) **Bleachery** reports net profit for year ended Sept. 30 of $33,109 against $134,656 for previous year.

Modern Central Dyeing & Finishing Co., Paterson, N. J., is adding 10,000 sq. ft. floor space to permit expansion in several departments.

Brooklyn Yarn Dye Co., Brooklyn, N. Y., moved last month from 2217 Neptune Ave., to new and larger quarters at 24 Woodward Ave. New machinery has been installed and capacity doubled. New plant has its own railroad siding. A. J. Stone is president, Sam Katz, vice-president.

Handcraft Textile Print Co., Westerly, R. I., has leased facilities in the Aldrich Brothers plant, Moosup, Conn., and is setting up machinery.

Rock Hill (S. C.) Printing & Finishing Co., has acquired adjoining land, and will use for one-story addition to mill, to have facilities for employment of about 200 additional operatives. Proposed to begin work early in 1939.

Batesburg (S. C.) **Print Works** have built a 250 x 200 ft. building and are installing machinery. Dr. A. L. Ballenger is among those actively interested.

PIT FEED, SQUEEZE ROLL, DRYER and BAGGER

If it's raw stock

...let SARGENT handle it!

This unit is fully capable of handling large quantities of Wool, Cotton or Staple Rayon. It is *continuous* and *mechanical* and *labor-saving... uniform* in *quality,* and *production* is *guaranteed.*

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GIVES YOU..

(NOT WEAKENED BY RIVETS)

ESS BREAKAGE
ONGER SERVICE
OWER OPERATING COST
ONGER UNIFORMITY OF PRODUCT

OUR RECONDITIONING SERVICE
Means Real Saving to You
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If you are now a customer—you know this.
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Spinning Equipment. Whitin Machine Works. 44-page booklet describes Model F2 cotton spinning frame; included are numerous photographs, diagrams, and tables relating to types, parts, and capacities.

Instruments. Brown Instrument Co. Folder G-37 describes, by means of pictures and captions, company's complete line of indicating, recording, and controlling instruments for measuring and controlling temperature, pressure, flow, liquid level, and humidity.

Conveyors. Johns Conveyor Div., Osborn Mfg. Co. Booklet describes and pictures company's rubber-pipe conveyor for moving solids, wet mixtures, and sludges in any direction and with as many changes in direction as may be necessary.

Harness Frames. Steel Heddle Mfg. Co. Catalog illustrating every known type of harness frame and accessory, enabling mill men to select exactly the frame which suits their particular needs.

Blow-off Valves. Yarnall-Waring Co. Illustrated booklet describes company's boiler blow-off valves; bulletin B-420 covering low and medium pressure boilers, and bulletin B-430 pertaining to high pressure boilers; both booklets contain installation photographs and dimensional and other data.

Steel. Joseph T. Ryerson & Son, Inc. 28-page book pictorially explains company's "Certified Alloy" plan. Same company has issued condensed stock list and data book of products available for immediate shipment.

Sewing Equipment. Union Special Machine Co. December, 1938, issue of *The Needle's Eye* contains article and diagram showing uses of jute; also article and chart showing method of selecting V-belt and accessory equipment for use in connection with sewing machinery.

Flexible Metal Tubing. Flexible Metal Hose & Tubing Institute. Bulletin titled "The Fact Book" describes and pictures various types and uses of flexible metal hose and tubing.

Pipe Repair Equipment. M. B. Skinner Co. Catalog No. 38A describes company's pipe repair clamps and saddles, and valve and bibb reseaters; included is a "leak-cost" chart showing cost of air, steam, and water leaks on the basis of size of opening.

Yarn Winding Calculations. Universal Winding Co. Leaflet describes method of figuring yarn take-up speed and winding production with company's No. 50 winder.

Speed-Control Unit. Reeves Pulley Co. Folder illustrates and explains various features of company's vari-speed Motodrive unit.

Sanitary Equipment. G. H. Tennant Co. Bulletin describes company's new Bakelite and stainless steel sanitary toilet seats; stresses the fact that every surface is rounded, with no cracks, screws, or crevices for germs to lodge in.

Industrial Management. The Industrial Corp. Issue of *Porterfacs* containing article describing company's principle of finance and profit control; also graphic charts illustrating this principle.

Humidifying Equipment. Parks-Cramer Co. November, 1938, issue of *Parks' Parables* lists and describes achievements of and additions to company's line of humidifying equipment during the past 30 years.

Indicating and Recording Equipment. Esterline-Angus Co. Bulletin No. 21 describes briefly company's speed indicators and recorders, time and liquid-level recorders, and other control equipment.

Pulverized Coal Firing System. Combustion Engineering Co., Inc. 36-page catalog describes company's direct-fired system for burning pulverized coal; included are numerous illustrations of machine details and installations.

Materials Handling Equipment. Cleveland Crane & En-

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—As in other years, this issue will cover the statistical record of 1938, surveys of progress in textile machinery and processes, in mill engineering, in machinery sales, in association activities; and the outlook for textiles in 1939.

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FREE FOR THE ASKING

(*Continued from page* 100)

gineering Co. Leaflet illustrates and describes advantages of company's ceiling equipment for transporting materials during or between processes.

Portable Mixers. Mixing Equipment Co., Inc. 8-page booklet describes company's portable mixers in several types; included are mounting diagrams showing how mixers can be attached to tanks of various sizes and shapes.

Surface-Active Chemicals. E. F. Houghton & Co. Leaflet describing two new surface-active chemicals—Surfax and Surfax W. O.—which are said to possess unusual wetting-out and softening properties.

Nickel-Clad Steel. Lukens Steel Co. Vol. 1, No. 2 of *Clad News* contains article announcing Monel- and Inconel-Clad steel, and application of the material to the elimination of size kettle trouble.

Power Fuse. Westinghouse Electric & Mfg. Co. Booklet F. 8450 describes company s dry boric-acid power fuses for protection of high-voltage circuits and equipment.

Electric Hoist. Yale & Towne Mfg. Co. Booklet describing company's new air-cooled electric hoist, said to be the first of its type and to eliminate troubles due to excess brake heat.

Conveying Equipment. American Monorail Co. Illustrative booklet devotes 48 pages to photographs showing installations of monorail carriers, including several illustrations of textile-mill applications.

Silicate of Soda. Philadelphia Quartz Co. Vol. 18, No. 12 of *Silicate P's and Q's* contains discussion of uses of company's products, a list of various technical bulletins issued by the company, and an index to Vol. 18 of the publication.

Synthetic Rubber. Rubber Chemicals Div., E. I. du Pont de Nemours & Co., Inc. No. 9 of the *Neoprene Notebook* contains, among other interesting material, a short discussion of possibilities of applying Neoprene to textile fabrics.

Lighting Equipment. Curtis Lighting, Inc. Illustrated folder describes company's reflectors and fittings for fluorescent lamps.

READERS interested in literature reviewed on this page may secure copies by writing to TEXTILE WORLD, 330 West 42d St., New York, giving their company connection.

Stokers. Detroit Stoker Co. 20-page catalog describes and pictures company's multiple-retort stoker, designed especially for large boilers and high capacities.

Fire Protection. Rockwood Sprinkler Co. Folder describes four of company's devices for preventing freeze-ups in sprinkler and standpipe systems.

Ball Bearings. New Departure Div., General Motors Corp. 1939 edition of company's ball bearing interchangeability tables in booklet form, No. R19.

pH Test Paper. R. P. Cargille. Chart printed in 14 colors shows how company's wide range pH test paper has been extended to include a color change for each unit from pH 1 to pH 14.

Variable-Speed Transmission. Ideal Commutator Dresser Co. Illustrated folder describes "Select-O-Speed" transmission equipment and numerous other products of this organization.

Anti-Foaming Agents. Carbide & Carbon Chemical Corp. 4-page folder summarizes use of octyl alcohol as an anti-foaming agent in a variety of applications.

Tube Washers. Worthington Pump & Machinery Corp. Illustrated leaflet W-200-B4 describes hydraulic tube washers for surface condensers, stresses the fact they can be used with systems in complete operation.

Temperature Gages. Weston Electrical Instrument Corp. Illustrated booklet describes company's industrial temperature gages in general-purpose and heavy-duty types; contains price information and photographs showing actual size of dials.